

JULY 1950

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# CHEMICAL PROCESSING

*The News Magazine of Processing Developments and Control*

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229 articles

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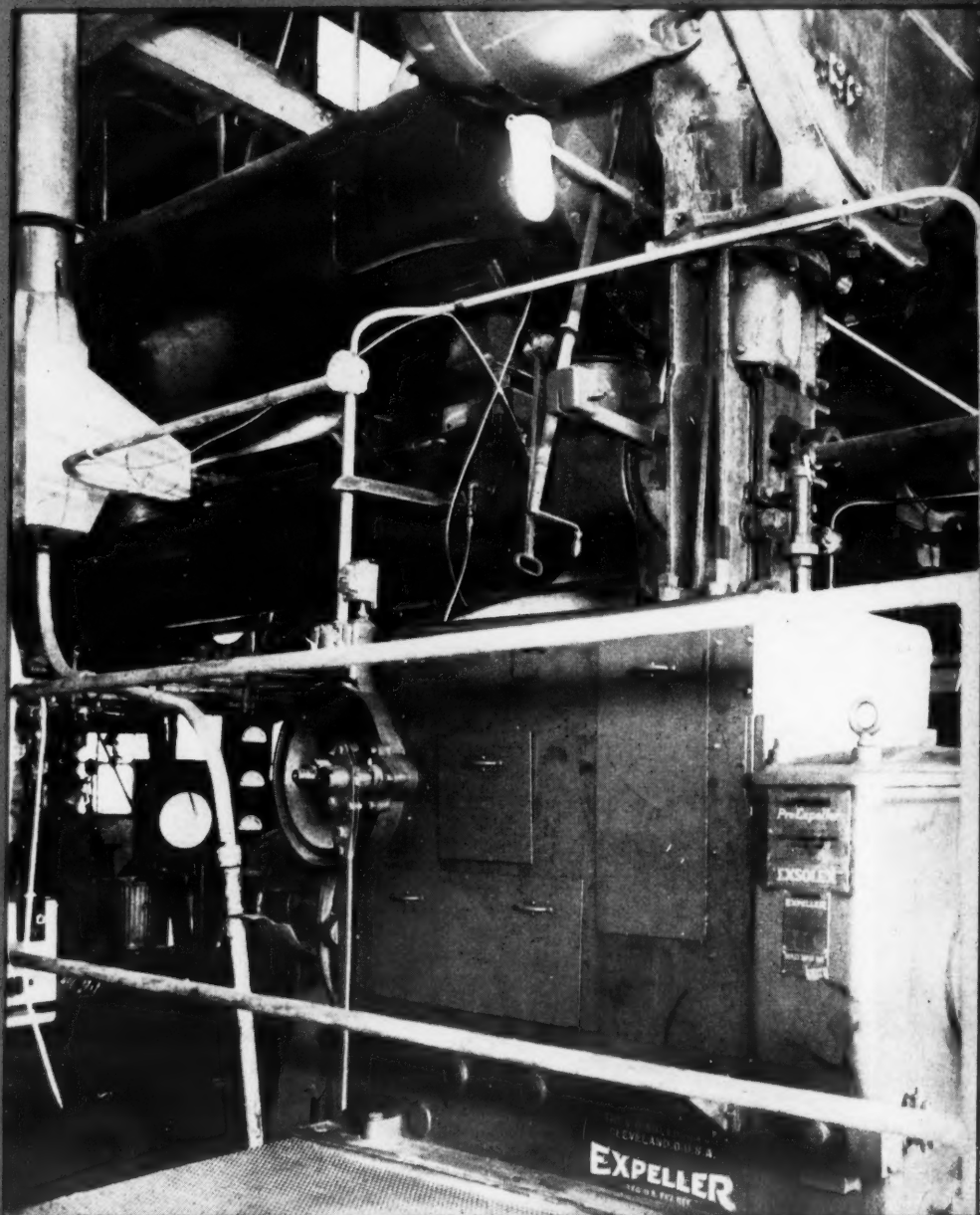
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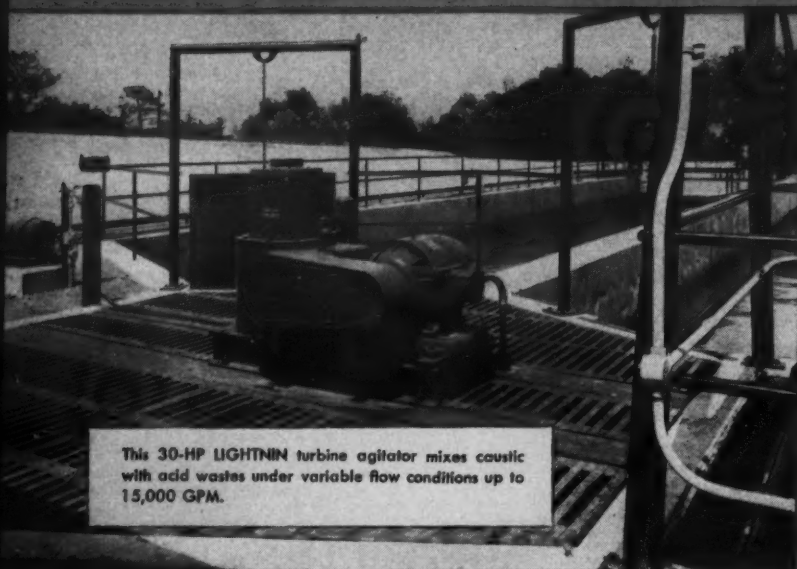
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oil, conserves solvent,  
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MAN PUBLISHING CO., CHICAGO





This 30-HP LIGHTNIN turbine agitator mixes caustic with acid wastes under variable flow conditions up to 15,000 GPM.

#### APPLICATION DATA:

**OPERATION:** Continuous rapid neutralization of acidic wastes with caustic solution.

COMPONENT	PCT. BY VOL.	pH RANGE	FLOW RATES
Acidic Wastes	96 - 100	1 - 6	5,000 - 15,000 GPM
20% Caustic	0 - 4		0 - 250 GPM*
Organic Solids	up to 1		

\*Flow rate of Caustic regulated by automatic pH control equipment.

**NEUTRALIZER PIT:** Hexagonal, concrete, lined with corrosion-resistant material.

**DIMENSIONS:** 14'6" across flats, 13'6" deep.

**CAPACITY:** 16,250 gals. **APPROX. LIQUID DEPTH:** 11'.

**BATCH:** 13,000 gals. **BATCH RATIO:** 0.8

**SETTLING BASINS:** Concrete, 20' wide, 100' long; sloping bottom, 9'6" to 14' deep.

On any fluid agitation job, MIXCO technology lets you know in advance what the results will be. Every installation is performance-guaranteed.

LIGHTNIN Mixers are the world's most complete line of standard ready-to-use units. LIGHTNIN gives you unlimited range of variables—from standard components.

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- ☐ B-76 Side Entering Mixers ☐ B-89 Top Entering Mixers (Turbine and Paddle Type)
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- ☐ DH-50 Laboratory Mixers

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# NEUTRALIZING CHEMICAL WASTES

with

## Lightnin® Mixers

(MIXCO® Engineered)

### Lightnin Mixers HELP MAINTAIN CLOSE pH CONTROL AT HIGH VARIABLE FLOW RATES

**MIXCO Analysis:** Flow rates specified gave a retention time of 0.87 to 2.6 minutes. To obtain a minimum of 2.1 turnovers with maximum flow, a turbine pumping capacity of 32,000 GPM was required. Turbine factor was calculated as 1.54, on basis of turbine location, acid sp. gr., viscosities, tank shape and baffling. Exclusive MIXCO agitation data showed that a stabilizing ring could be used, rather than a steady bearing, on the required 11'9" shaft.

**Solution:** LIGHTNIN Model 5D-WQ-3000, 30-HP Agitator, with V-belt drive from 1750-RPM motor, to provide output shaft speed of 61 RPM. Belt permits 25% speed reduction if required. Agitator equipped with dual 48" multi-blade flat-blade turbine impellers, spaced properly apart on shaft. Turbines selected for full motor loading. All immersed parts made of Hastelloy B, to resist corrosive action. Tank fitted with three baffles at midpoints of alternate sides.

**Results:** Extremely close pH control. All organic solids are held in suspension and carried over to settling basins. The LIGHTNIN Agitator has given trouble-free service since installation about two years ago.

### A COMPLETE LINE . . . UNEXCELLED TECHNOLOGY



#### LIGHTNIN PORTABLE MIXERS

World's largest - selling line. Electric or air motor; direct or gear drive. Sizes, 1/2 to 3 HP.



#### LIGHTNIN TOP ENTERING AGITATORS

Turbine, propeller and paddle types. For open or closed tanks. Fixed or variable speeds available in heavy duty drive. Sizes 1/2 to 200 HP.



#### LIGHTNIN SIDE ENTER- ING MIXERS

For tanks up to 5 million gallons. Gear motor or V-belt drive; motorless types. Sizes 1 to 25 HP.

"That's Interesting"

#### Red, white and blue bees

Red, white and blue bees are being bred at the University of California. The bees are red, white and blue-eyed. They are descendants of some freakish white-eyed drones which were subsequently bred to black-eyed queens. The offspring were black-eyed, but cross breeding produced white-eyed ones. The some red-eyed drones came along to produce red-eyed offspring. Two drones with bluish eyes completed the color scheme (Dyelines & Bylines, American Cyanamid Co., Calco Chemical Div., New York 20, N. Y.)

#### Convert air tool to speed cutting 30" pipe

An air-grinder adapted to a pipe cutting job has reduced required time 90%. Chipping hammers had been used to cut 30 inch centrifugal cast iron pipes consuming as much as 8 hours labor.

Supervisors of the job mounted a Thor air motor on a metal base equipped with rollers and attached an abrasive disc. Taking a 5/8 inch cut, the converted tool produced a cleaner cut. Operating time was reduced to 1 1/2 hours. (Thor Tool Div., Independent Pneumatic Tool Co., Aurora, Ill.)

#### ACS membership 62,000

In 1876, thirty-five chemists met in New York to form an organization for promoting the interests of their science. The society grew and on its 50th anniversary in 1925 there were some 15,000 members. By 1940, that number had risen to 25,000 and now membership is 62,000. (As reported in Silicate P's & Q's, Philadelphia Quartz Co.)

#### Nylon gears take beating equal to 50 years of hard service

Substituting nylon pinion gears for cast die cast gears has tremendously increased service life of household egg beaters. Nylon gears showed no signs of wear after 500 hours of continuous operation equal to 50 years of normal use in the home. Beaters with zinc pinion gears broke down within periods ranging from 22 1/2 hours of continuous service. Ekco Products Co., Chicago is the manufacturer of the beaters using these new gears.

#### We're looking for a driver for this pee-wee screw

Perhaps the smallest mass-produced precision screw made in this country is the balance-timing screw of the Elgin National Watch Company, Elgin, Ill. Microscopes are used for inspecting the head diameter is 0.0240" and head length 0.0100". There are 360 threads of 0.011" diameter; thread length is 0.0108".

(Continued on third cover)

For more information on product at left, specify CP 8416 . . . see information request blank between pages 2-3.

As you read this issue, if you want more information on processes, controls or developments of products discussed herein . . .

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8416b	B78 Top-entering Mixers	8486a	Trilead Orthophosphate	8499	Scratch Tester	8564	5 Ton Fork Truck
8416c	DH50 Lab Mixers	8486b	Dilead Pyrophosphate	8500	Humidity Controller	8565	Drum Handling Fork Truck
8416d	B89 Top-entering Mixers	8487	Uni-temp Grease	8501	Flow Rate Indicators	8566	Screw-lift Conveyors
8416e	B75 Portable Mixers	8488	Chemicals (State Requirements)	8502	Flow Meters	8567	Aluminum Roller Conveyors
8417a	B76 Formaldehyde	8489a	Toxaphene 50	8503	Report on Latex Flow Control	8568	Sheet Feeding
8417b	Parafomaldehyde	8489b	45% Chlordane	8504	Spectrophotometer Accessories	8569	Fork-lift Trucks
8417c	Hexamethylenetetramine	8489c	15% Parathion	8504	Pneumatic Current Controllers	8570	BS&B Beacon
8418	Vinylite Resins	8470	Plastic	8505	Resistance and Thermocouple	8571	Thermodynamic Properties of
8419	Wetting Agent	8471a	Molding Compound, Fabric-filled, Natural	8506	Thermometers		
8420	Activated Aluminas	8471b	Molding Compound, Fabric-filled, Black	8507	Refrigeration Test Gauge Sets	8572	Air Flow Control Valve
8421	Compressed Air Breathing Equipment	8471c	Molding Compound, Nitrile Rubber-bearing	8508	Processing Equipment (State Requirements)	8573	Laboratory Equipment
8422	Corrugated Boxes	8472	Isobutylamine and Diisobutylamine	8509	Laboratory Furniture	8574	Citraconic Anhydride
8423	Oil Extraction Process	8473	Tackifiers for Neoprene Latex	8510	#11 Indicating Regulators	8575	Control Devices
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8425a	Benzyl Chloride	8475	Powdered Methylcellulose	8512a	Flat Glass Gauges	8577	Vibrating Screens
8426b	Benzoin Acid	8476	Non-toxic Plasticizer	8512b	Furnace Bulletin 210	8578	Indicating Electronic Controllers
8426c	Sodium Benzoate	8477a	Emulsifiers & Wetting Agents	8512c	Lab Shakers		
8427	Neutronyz Data Booklet	8477b	Methyl-para-toluenesulfonate Sample	8513	Resistance Boxes	8579	Circular Collectors
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8429a	Continuous Centrifugal Filters	8477d	Vinyl Plasticizer	8515	Liquid Level Controllers	8581	Hydraulic Lift Trucks
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8432b	Vessel Bulletin V-46	8477i	Insecticidal Chemical	8520	Pressure Transmitter	8586	Dowtherm Process Equipment
8432c	Vessel Bulletin V-52	8477j	Metal Corrosion Inhibitor	8521	Flame Failure Safeguard	8587	Vibrating Screens
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8443	Diethylene Glycol	8480c	Para-sec-amylphenol	8531	Liquid Level Controllers	8598	Precision Balances
8444	Furacil	8480d	Poly-sec-amylphenol	8532	Pneumatic Transmitter	8599	Fans and Blowers
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8449	Alkali Resistance of Nickel	8485	Air Separator	8536	Dial Thermometers	8604	Forming and Fabricating Molybdenum
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8451	BCU Urea Resins	8487c	Line Filters & Tubing	8540	Photomicrographic Apparatus	8608	Detergents
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8454	Teflon Gaskets & Packings	8489b	Caustic Potash	8543	Gas Pick-up Truck	8611	Filter Base
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8456	Transformer Oil Inhibitor	8489d	Liquid Chlorine	8545	Fork Truck	8613	Pump Catalog "M"
8457	Koroseal & Rubber Coated Clothing	8489e	Paradichlorobenzene	8546	Platform Truck	8614	Nozzles
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8460b	Diethyl Phthalate	8491	Gear Type Couplings	8550	Cable Trolley Conveyors	8617	Fatigue Machine
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# CHEMICAL PROCESSING

(CHEMICAL PROCESSING PREVIEW)

The News Magazine of Processing  
Developments and Control

VOL. 13

NO. 7

JULY, 1950

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When inquiring check CP 8418 on handy form, pgs. 2-3

## HIGHLIGHTS

(Continued from front cover)

*These articles have been selected by the Editors  
as having unusual interest*

\* Residual Oil in Solvent Extracted Cottonseed Meal Was 2.6%, Is Now 0.3% . . . Pre-exPELLERS, added ahead of solvent extraction facilities, slash solvent losses, save steam and water in producing quality meal and oil 8

\* Opens Feedwater Pump By-pass When Steam Load Drops to Low Value . . . Automatic controller prevents damage to turbine-driven pump caused by dead-heading 14

\* More Selective for Aromatic-paraffin Separations Than Any Solvent Known, States Report . . . Three dipropionitriles are applicable to refining of petroleum crudes, vegetable oils, and wood rosins 16

\* Absorb Ultraviolet but Let Visible Light Through . . . Chemicals are used in outdoor coatings, transparent windows 19

\* Mass-spectrometric Analysis Speeds Up Lab Work . . . Is now applied to process development, quality control and fundamental research on structure 28

\* Neoprene Adds to Pulp "At Beater"; Increases Strength, Chemical Resistance of Papers . . . Mill trials substantiate practicality of process 29

\* Measures Resistance of Plastic Surfaces to Scratching and Shearing . . . Same specimen and mounting used on instrument may be used on maker's wear-measuring device 38

\* Prevents Unexpected Plugging of Intake Water Screens . . . Control system is based on differential water levels across traveling screen and across trash rack 48

\* Can't Open Vessels Till Pressure Is Reduced . . . Safety bolt's mechanism is actuated by vessel's pressure 81

\* Use Infra-red As Heat Source in Freeze-drying of ACTH; Up Production, Cut Cost . . . Supplants liquid heat source; speeds process; lower vacuum, less cold required 88

\* Location of Fluorescent Fixture Trouble Simplified . . . Tester checks entire fixture through starter socket 92

\* Perform Many Lab Operations with Flask-separatory Funnel . . . Pyrex glass apparatus permits drawing off light liquids; saves time and materials 93

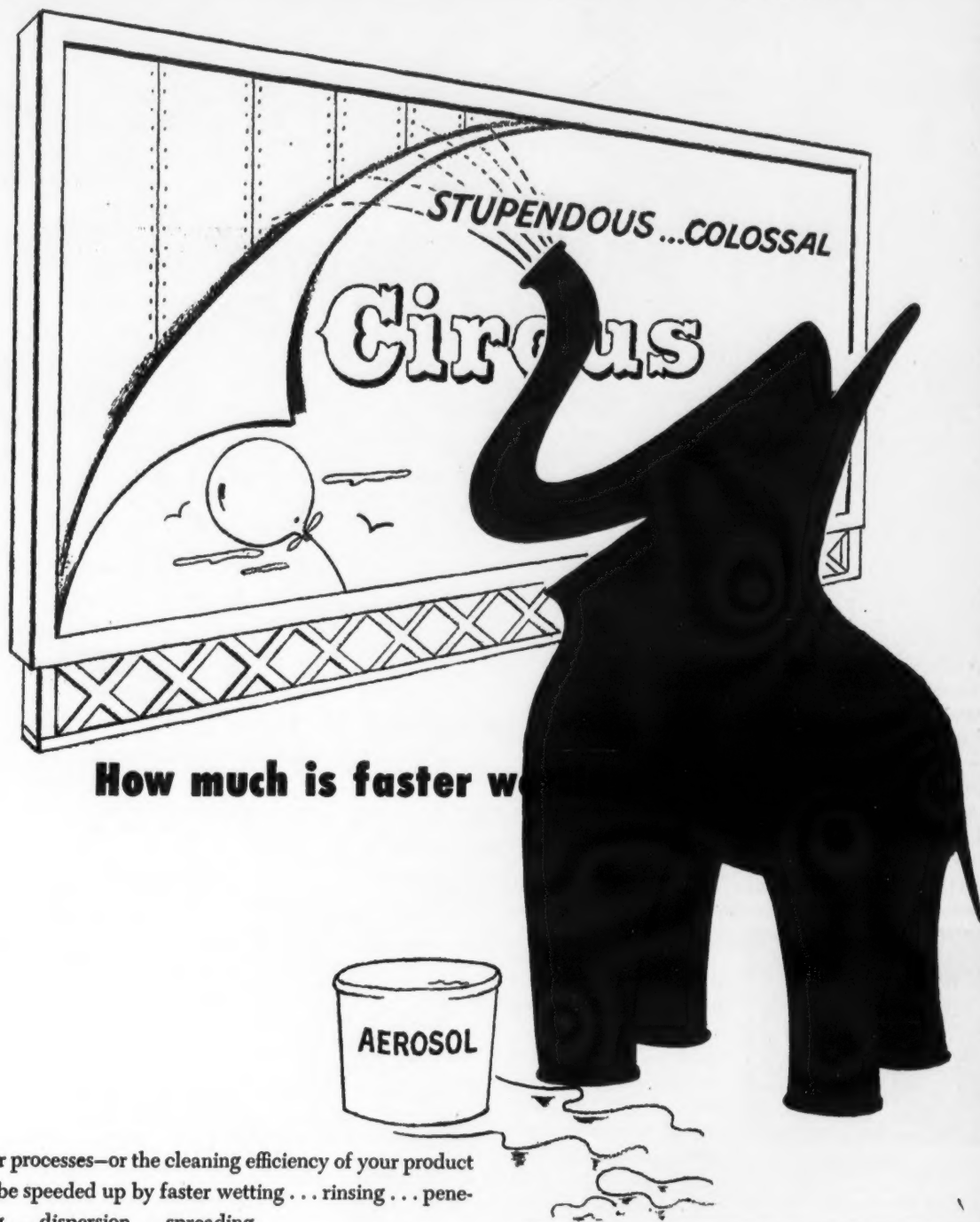
\* Pulsating Pneumatic Panels Keep Stubborn Materials Feeding through Bins . . . Automatically-regulated pulsations act directly on bin contents, displacing them without vibration 103

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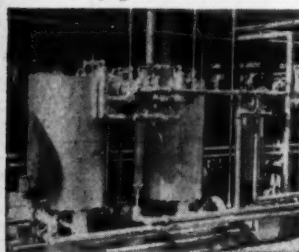
When inquiring check CP 8419 on handy form, pgs. 2-3



**I**F the compressed air in your instrument lines and process-control lines holds moisture, rust or oil, you're in trouble. Instrument readings can go haywire . . . air-line valves can stick . . . controls can go entirely "off the beam" . . . the whole shootin' match can literally blow up!

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Courtesy of  
Stanolind Oil & Gas Company

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is an oil filter—also charged with ALCOA Activated Alumina—which cleans the air of oil and suspended impurities that may enter system from the compressors.

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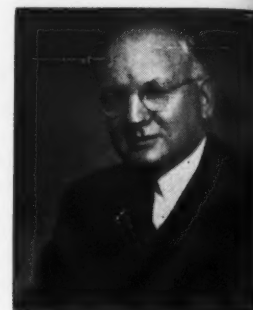


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When inquiring check CP 8420 on handy form, pgs. 2-3

## How to Encourage Initiative in the Laboratory

By J. H. BABCOCK  
Director of Development & Research  
Hooker Electrochemical Company  
Niagara Falls, New York



Graduate, Dartmouth, 1914; with the Hooker Company since 1916 in various capacities connected with production, sales and research. Active in Development & Research since 1933; Manager of the dept. since 1943, Director of same since January, 1949.

**I**N addition to holding research steering conferences at approximate six-month intervals, Hooker Electrochemical Company has a plan for encouraging initiative among its research laboratory chemists and chemical engineers.

Under this plan, suggestions for a new product, process, product application or improvement in an existing process are submitted to a Research Suggestion Committee consisting of three research supervisors and a patent attorney. This group meets once a week on a specified day and hour.

Suggestions are recorded and acknowledged by the secretary, and the suggestor may be present at the next regular meeting, if he desires, to participate in the evaluation of his idea.

The committee has power of recommendation only. In acting upon a suggestion, it may recommend one or more of the following: 1) drop the subject, 2) approve for investigation in the laboratory, 3) approve for literature (and patents) search, 4) approve for discussion with an outside consultant, or 5) request additional information from sales, sales development, patent, engineering or other departments.

If recommendation is for "no action", the suggestor is so notified, with reasons, and is privileged to reopen the subject by submitting further data.

Once a month the committee meets with the Director of Development and Research who, in the meantime, has received and examined copies of each suggestion. Ideas are reviewed at this time, and the director acts upon recommendations of the committee. When at all feasible, he tries to agree with the committee.

When the director approves an idea for action, he issues a project number and assigns the work to an appropriate individual or research group for development. Sometimes, if the project warrants it, an assignment is broken down and parts assigned to different groups.

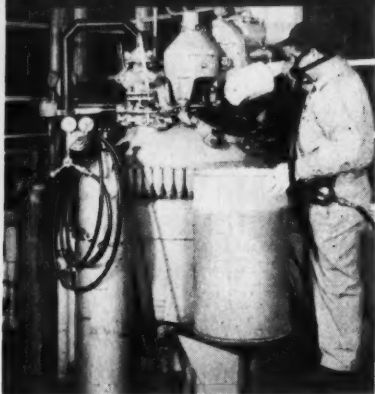
As there is likelihood that the assignment may not be made to the suggestor, he is again notified of action to be taken. When the project is completed he is notified of results.

At intervals of three months, a meeting is held to review progress on assigned projects.

An important detail of the committee's activities is a complete log, or record, kept by the secretary, of all suggestions, recommendations, action, progress and results. Chairmanship of the committee is rotated monthly so that no individual bears entire responsibility for its functioning. The committee also makes recommendations, to the di-

(Continued on page 9)

## HOFFMAN - LA ROCHE REPORTS "A Wonderful Job" BEING DONE BY Scott RESPIRATORS



HOFFMAN-LA ROCHE, INC. of Nutley, N. J. — manufacturers of chemicals and pharmaceuticals — have several points in their processing where exposure to chemical fumes creates a breathing hazard. They report highly successful results with their use of Scott Demand Respirators. Over thirty Scott units are now protecting their employees against organic vapors and acid gases at these points.

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When inquiring check CP 8421  
on handy form, pgs. 2-3

## ANNOUNCING \$500.00 in annual awards

to readers submitting the most useful fact-articles concerning "New Solutions of Processing Problems"

PLUS

awards of \$25.00 for EACH qualifying "New Solutions" article published in *Chemical Processing*

★

### HERE'S WHAT YOU DO:

Read the rules on page 122. Then tell us, in your own words, about a *specific* case where your own chemical plant, or someone else's, has—

- improved their product
- increased production
- saved time
- cut costs

—or otherwise improved their processing or manufacturing procedures by employing—

- new processes
- new methods
- new materials
- new equipment
- additional equipment
- better material handling

—or by other means of achieving better quality, greater efficiency, etc. (See types of chemical plants receiving *Chemical Processing*, as listed on page 5 of this issue.)

If your new solution of a processing problem is worthy of editorial consideration, we will—

- contact the plant
- assemble any needed additional "background" data
- and EDIT the article

★

For EACH reader-submitted "New Solutions" article not previously published, *Chemical Processing* will award the sender—

—\$25.00, payable on publication

### FURTHERMORE . . .

Each \$25.00 award-winning article published in *Chemical Processing* during the initial 12-month period will automatically be entered in competition for the 1950 PUTMAN EDITORIAL AWARDS of—

\$250, \$150 and \$100,

respectively, for first, second and third best reader-submitted "New Solutions" articles of the year.

JUDGING of the three best reader-submitted "New Solutions" of the year will be handled by an Editorial Awards Committee consisting of 10 impartial reader-judges. Members of this committee will be announced later.

*To assure editorial consideration of  
your entry, be sure to read the rules  
appearing on page 122, this issue.*

## Creative Package Design



### this corrugated "luggage" box

Displays the product...suggests  
itself as a gift...prompts the purchase...  
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re-use value...is adaptable to mailing. Give your product  
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When inquiring check CP 8422 on handy form, pgs. 2-3

# RESIDUAL OIL in Solvent Extracted Cottonseed Meal WAS 2.6%, IS NOW 0.3%

*New Solutions*  
OF PROCESSING PROBLEMS

**PROBLEM:** The high residual oil content (2.6% average) remaining in cottonseed meats after solvent extraction and drying was one of the things that prompted Delta Products Company, Wilson, Ark., to look for ways of process improvement.

The company realized that they could better their competitive position by getting more of the oil out without increasing overall processing costs. Of course, the oil and meal would have to possess the same or higher quality to make the process fully successful.

**Solution:** Instead of straight solvent extraction, Delta is now using the Anderson Exsolex process which reduces the oil in the meats in a high-capacity pre-expeller, making a cake from which highly extractable flakes may be prepared. The oil is then solvent extracted from the prepared flakes. Two pre-exPELLERS were placed ahead of the company's existing 200 ton per day solvent extraction plant. Some changes were made in the process, but, in general, these were not difficult.

Here is a step-by-step description of the process: cottonseed are received and stored in Muskogee seed houses. As the seed enter the process, they are run through sand and boll reels to remove foreign matter, and are then conveyed to large work bins in the mill building. Variable speed feeders regulate flow from bins.

The seed from the work bins are cleaned again, this time by pneumatic type cleaners. Clean seed are conveyed to a row of first cut linters where the longer staple lint is removed, and then to a battery of second cut linters for removal of remaining lint. The lint is cleaned and baled.

Delinted seed are run over a safety shaker to remove any loose lint, metal, stones, etc., before entering hullers. In the hullers, the seed are cut up to allow the hulls to be separated from the meats by shakers with air nozzles attached to end of the tray. Hulls removed from shaker are beaten to remove fine meats that might be clinging to them.

Separated meats go over a purifier shaker where enough hulls are removed with air nozzles to control the protein content of the finished meal. Purified meats, mixed with some hulls, go through a set of five high rolls.

Rolled meats are fed from a small surge bin to a stack cooker at a uniform rate. After cooking, they are conveyed to the pre-exPELLERS. Moisture is adjusted in the cookers above the pre-exPELLERS. Oil from the pre-exPELLERS flows to a screening tank where most of the "foots" are removed continuously and returned with feed to pre-exPELLERS. Screened oil is pumped to a tank equipped with an agitator and then through a plate and frame filter to remove any suspended meal.

The filter cake is fed into stream of meats going to pre-exPELLERS, and the filtered oil is pumped to storage. The

cake from the pre-exPELLERS is put through cracking rollers where it is broken up into small pieces. These pieces are treated and conveyed to flaking rolls. The flakes are conveyed to the top of extractor in solvent plant.

The extractor consists of a series of plates, a central shaft, and revolving paddles above each plate. Flakes pass downward, counter-current to solvent. The miscella (Solvent-oil mixture) flows over a weir inside the top of the extractor, goes to a tank and is pumped through a filter to remove traces of fine meal particles.

Clarified miscella is then pumped through a preheater where its temperature is raised to boiling point of solvent. From there it passes into the bottom of a high velocity rising film evaporator which discharges into an expansion chamber. Solvent vapors pass overhead to condenser, and oil settles in bottom of chamber. The oil is preheated and stripped free of solvent traces in a vacuum stripping column. Oil flows down through a series of bubble cap trays, and steam is bubbled up through the descending oil stream. Steam and solvent vapors pass to a condenser, and water and solvent are separated in a separator. The oil is cooled and stored.

In the original process, miscella had to be passed through a continuous horizontal centrifuge to remove the bulk of the fines before final filtration. The flakes produced from the treated pre-expeller cake, however, have proved to be durable and do not disintegrate into fines during extrac-

**Pre-exPELLERS, added ahead of solvent extraction facilities, slash solvent losses, save steam and water in producing quality meal and oil**

tion. Hence, the centrifuge is not required in the new process. Even though the centrifuge is not used, the length of the filter cycle between cleaning is longer — it is now a few days and was only a few hours.

Extracted meal is elevated in a drag chain conveyor to a point above the solvent level of the extractor and is discharged into dryers for removal of solvent. These dryers consist of a series of steam jacketed ribbon conveyors.

Meal leaves the dryers through a plug seal and is conveyed to the meal room for grinding and sacking.

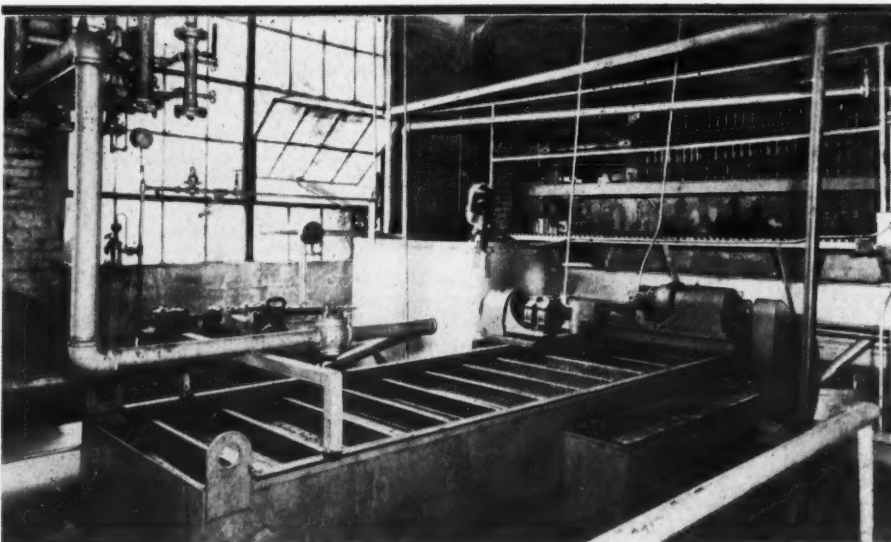
Solvent vapors from dryers are washed free of meal and condensed. Solvent and water from condenser flow to a separator. Solvent is returned to storage for reuse.

**Results:** Residual oil in dried meal averages 0.3% vs. the 2.6% average in straight solvent extraction. This means that a total of 375 lb oil per ton of cottonseed is obtained, 18 lb more per ton than with other process.

The oil produced from the pre-exPELLERS and solvent plant is of excellent quality. The crude oil has the refining characteristics of hydraulic press oil and has a very light

color. It refines to a light color and has very good bleaching qualities. This oil has been found to be excellent for manufacture of a high grade oleomargarine and shortening.

The composite oil from the pre-exPELLERS and solvent plant is being refined in the laboratory by standard procedure and is giving about 2% lower refining losses than solvent extracted oil with comparable free fatty acids.



This set of flaking rolls prepares pre-pressed cottonseed meal for solvent extraction

Longer filter cycles have saved on labor, and have contributed to large savings in solvent, filter aid, cloths, gaskets.

Color of meal produced by the Exsolex process is similar to that of hydraulic meal and it is almost gossypol-free. This may open the way to larger use of cottonseed meal in feeding of swine, baby chicks and calves.

Solvent losses are less than half that in the old process. This reduction is due to three factors: 1) decreased air-load through vent system because continuous horizontal centrifuge was eliminated; 2) increased length of filter cycles (every time a filter press is opened and cleaned, some solvent is lost); and 3) lighter load on distillation and solvent recovery units. The saving in solvent means a substantial financial gain and a reduction in hazards.

Steam and water consumption has been cut to a third of what it was. With direct solvent extraction, at a rate of 200 tons cottonseed per day, it was necessary to pump 60 gpm solvent into the extractor. All solvent has to be heated from 80°F to its boiling point and vaporized in recovery; and then has to be condensed with water. In the new process, only 20 gpm of solvent has to be used.

Spurge steam used in stripping column is less than half that needed before. The steam to the jet ejector on the dryer condenser is turned off most of the time since the use of the centrifuge has been discontinued.

Savings in steam more than offset the additional power needed for the pre-exPELLERS. Delta has saved 20 hp in cooling water pumps, 35 hp in elimination of the centrifuge and 10 hp in pumping of solvent and miscella. The operation of the two pre-exPELLERS has added 280 hp, so the net additional power required is 280 minus 65, or 215 hp.

Manpower has been rearranged in such a way that the new process can be operated without additional labor. At the same time, capacity of the plant has been increased.

**Source:** The Exsolex process is a development of The V. D. Anderson Company, Dept. CP, Cleveland, Ohio ... or for more information check CP 8423 on handy form, pages 2 and 3.

#### **Translates weight changes to electrical energy changes**

Load cell which translates changes in weight into changes in electrical energy is feature of bulletin. Employs resistance wire strain gauge. Units may be used for dynamic measurements, including impact studies. Cell capacities range from 2000 to 200,000 pounds. Bulletin 307 illustrates, describes, and specifies cell; is issued by The Baldwin Locomotive Works, Dept. CP, Philadelphia 42, Pa. When inquiring specify CP 8424 on handy form, pages 2 and 3.

#### **Encouraging Initiative (Cont. from pg. 6)**

rector, on advisability of obtaining patents. It may call in experts from any department in the plant to advise and assist in evaluating suggestions.

It is less than two years since the Research Suggestion Committee was formed. In this comparatively short time, it has processed 136 suggestions. About 75% of these were approved for action, while about 5% have resulted in valuable contributions to the company.

Unlike most plant suggestion systems, no bonus or financial remuneration is made for approved suggestion. The system is primarily one for recognizing and encouraging individual initiative and original constructive thinking on the part of the research staff. The staff is enthusiastic about the plan, as shown by a gradual increase in the number of suggestions submitted. They feel that it is an excellent means of gaining recognition of their own particular talents and abilities.

# When Toluene Derivatives Are Indicated As Intermediates Hooker Offers You Many Advantages

## COMPLETENESS

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## EXPERIENCE

Hooker's long experience with the development of chlorine derivatives has built a fund of technical knowledge that is available to you in determining the intermediate best suited to your requirements. End product desired, equipment, yield, cost, handling, etc., should be discussed with our technical staff.

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The famous Hooker "S" Cell provides a continuous supply of high purity Chlorine. This, plus carefully selected raw materials and the special processing techniques developed over the years, makes Hooker intermediates the highest quality obtainable. This permits substantial savings in manufacturing by eliminating fluctuations due to quality variations.

Data sheets on Hooker Toluene derivatives are available when requested on your company letterhead. Bulletin 320 gives more details on the reactions of these products.

### BENZYL CHLORIDE

Synonym	Alphachlorotoluene
Formula	$C_6H_5CH_2Cl$
Molecular Weight	126.5
Freezing Point	-43°C
Distillation Range	5° or less including 179.4°C
Refractive Index, $n_{25}^D$	1.5365
Specific Gravity, 15.5°/15.5°C	1.107

#### DESCRIPTION

Colorless to light yellow liquid having a pungent odor. The above data are for the high grade product. Also available as a technical grade with a wider distillation range.

#### USES

In manufacture of intermediates, dyestuffs, perfume bases, plasticizers, resins, wetting agents, rubber accelerators, gasoline gum inhibitors, pharmaceuticals.

### BENZOIC ACID

Synonym	Phenylformic Acid
Formula	$C_6H_5COOH$
Molecular Wt.	122.1
Melting Point	122.0°C
Solubility, gms/100 gms	
Water at 18°C	0.27
Alcohol at 15°C	32
Ether at 15°C	40

#### DESCRIPTION

White, odorless, crystalline solid, sold in powdered form. U.S.P. grade meets requirements of U.S. Pharmacopeia XIV. Technical grade does not quite meet these requirements.

#### USES

Dyestuff intermediate, manufacture of perfumes and pharmaceuticals, manufacture of benzoates; preservative for textile sizing, foods, cosmetic creams, lotions, antiseptics, dentifrices, and other pharmaceuticals.

### SODIUM BENZOATE

Synonym	Benzoate of Soda
Formula	$C_6H_5COONa$
Molecular Wt.	144.0
Solubility, gms/100 gms	
Water at 25°C	62.5
Alcohol at 25°C	2.3

#### DESCRIPTION

Hooker Sodium Benzoate is a white, odorless, crystalline solid in flake or powdered form. Available in two grades, U.S.P. and Technical.

#### USES

Chemical intermediate; preservative for foods, and as an antiseptic in pharmaceutical and cosmetic preparations. Also recommended as a corrosion resistant additive for certain solutions.

*From the Salt of the Earth*

HOOKER ELECTROCHEMICAL COMPANY

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When inquiring check CP 8426 on handy form, pgs. 2-3



10-910

# Onyx Suggests... NEUTRONYX 600

## Non-Ionic Detergent... Wetting and Emulsifying Agent

Because of . . . its stability in the presence of acids, alkalis and electrolytes  
 . . . its low volatility and usability at elevated temperatures  
 . . . its stable configuration, which insures safe storage over long periods  
 . . . its non-ionic character, which insures compatibility with anionic and cationic materials, as well as hard water

### For

- Alkaline metal cleaning compounds
- Acid cleaning and pickling operations
- Glass cleaning compounds — windows, bottles and glassware
- Dishwashing compounds
- Floor and wall cleaning formulations
- Rug and upholstery cleaners
- Fruit and vegetable washing compounds
- Railroad car cleaners
- Municipal street flushing operations
- Body washers for autos, trucks and buses
- Compounding of detergent sanitizers
- Wetting agent in dust laying
- Anti-spotting agent in film developing

## NEUTRONYX 600

Chemical Constitution . . .	Aromatic polyglycol ether
Concentration . . . . .	100% active
Compatibility . . . . .	Compatible with acids, alkalis, electrolytes, hard water and anionic and cationic agents
Stability . . . . .	Chemically stable, and does not deteriorate in storage
Solubility . . . . .	Soluble in water, alcohol, glycol, acetone, toluol, mineral spirits, etc.
Toxicity . . . . .	Non-toxic at all use-dilutions
Skin Irritation . . . . .	None, and no sensitization



### Write for Data Booklet

This data booklet covers all the facts about Neutronyx 600, including many more suggested applications besides those listed above.

**onyx**

INDUSTRIAL DIVISION

ONYX OIL & CHEMICAL COMPANY  
 184 WARREN STREET  
 JERSEY CITY 2, N. J.  
 CHICAGO • BOSTON • CHARLOTTE • ATLANTA  
 In Canada: Onyx Oil & Chemical Co., Ltd.  
 Montreal, Toronto, St. John's, Que.  
 For Export: Onyx International, Jersey City 2, N. J.

When inquiring check CP 8427 on handy form, pgs. 2-3

## New Solutions OF PROCESSING PROBLEMS

## Polyethylene Drum Liners Protect Clarity, Color of Adhesives

May be squeezed out  
to remove all shipped glue

Here's how Paisley wood glue is put  
into drum with polyethylene liner



**PROBLEM:** When plain steel drums were used to ship some of their adhesives, Paisley Products, Inc., plants in Chicago and New York, noticed that the adhesives were occasionally discolored due to chemical reaction with the steel, or by rust particles dropping from the head of the drum.

Baked-in lacquer drum coatings were tried, but the ones investigated had a tendency to be softened or loosened by the adhesive solvents. This permitted fragments of the coatings to enter the adhesives, impairing their machining qualities.

Cleanliness and original color are imperative in many of the applications to which the adhesives are put. Many are used in the packaging industries, on glassine and transparent films, where staining, foreign particles or off-color cannot be tolerated.

**Solution:** Instead of packaging the adhesive so it will be in direct contact with the interior of the drum, a polyethylene liner, Visqueen, is used inside the drum. This liner is unaffected by chemical solvents often employed in synthetic resin adhesives for wax-coated and treated papers. It is clear, odorless, tasteless and very flexible, and will not split when punctured. It is not sticky.

Also in the liner's favor in this application is a low moisture-vapor transmission rate. In tests, a 1-mil film had a rate of 1.45 gm/100 sq in/24 hr, and a 7-mil film 0.20 gm/100 sq in/24 hr. Both of these figures were determined at 100°F and 95% relative humidity, against vapor pressure of CaCl<sub>2</sub>.

The liners are supplied in the form of tubing which is cut to proper length and the bottom sealed. Usually, the cut and bottom-sealed liner is inserted over a suitable mandrel, such as a fibreboard cylindrical container, for neat and easy placement in drum. The top of the liner is draped over the top of drum and anchored in place by a rubber band during filling (see illustration).

After the drums are filled, a flat sheet of the polyethylene is placed over the opening, and the cover is attached.

**Results:** The chemically inert liner prevents entrance of rust and other foreign particles into the adhesives, and eliminates possibility of reaction with the metallic drum interior. Despite the extra cost, Paisley has found that customers appreciate the special care in shipping.

The customer is able to get all of the adhesive out of the container. The liner may be removed and squeezed like a tube of tooth paste. Many of these liners are re-used by the customer as glue reservoir covers, wraps, etc., in his plant. They are washed and cleaned to remove the gum residue before re-using.

**Source:** Visqueen film is a development of The Visking Corporation, Preston Division, Dept. CP, Terre Haute, Ind. . . . or for more information check CP 8428 on handy form, pages 2 and 3.

## Research Center Finds Better Way of Washing Chloride Ion from Barium Sulfate

Centrifugal filter increases production  
without requiring additional floor  
space; final cake contains less water

**PROBLEM:** Limited processing space prevented a Midwestern manufacturer of barium sulfate from increasing output. The product was made by reacting barium chloride and sodium sulfate solutions, and removing the sodium chloride that was formed as a by-product. It was imperative that the salt be removed because of the use to which the barium sulfate was put. Removal was performed by settling, decanting and repulping of the solids with fresh water no less than

CHEMICAL PROCESSING

seven times, taking the chloride ion concentration to about 0.001%. The final slurry required 3 days to settle to a cake of 30% solids. Although a higher concentration was desirable, this cake was used.

Obviously, any increase of production by this method called for a large amount of additional space — something that was not available.

**Solution:** The problem was put into the hands of the Bird Machine Company's Research and Development Center. This new center is equipped to handle plant problems in filtering, classifying and centrifuging. It includes two large test areas, one with 30 feet of headroom and lifting facilities up to 6000 lb, the other designed for handling of hazardous or volatile solvents. Ample equipment is provided for large-scale tests, and



Main test floor of center devoted to solving manufacturers' problems in solid-liquid separations

the center contains complete temperature, vacuum and power facilities.

The barium sulfate producer sent a sample to the center, and tests were made on the material. Based on the findings, Bird specified the type of equipment needed — in this case a small centrifugal filter — and this was installed.

**Results:** The filter provides a larger quantity of washed barium sulfate per day than the original settling method produced in several days. Four passes through the filter with repulping in between, reduce the chloride ion to 0.0008%. The final cake contains 65% instead of 30% solids.

**Source:** Bird Machine Company, Dept. CP, South Walpole, Mass. . . . or for more information check CP 8429 on handy form, pages 2 and 3.

#### Charts give valve sizing for liquid, gas, steam service

Network sizing charts contained in 20-page engineering data bulletin are for determining correct size of maker's valves for liquid, steam, or gas service. Correct valve size can be found from charts if following appropriate data are known: pressure drop across valve, specific gravity of material flowing, rate of flow, inlet pressure, and inlet temperature. Sample calculations are included to aid determinations.

Maker's engineering department will determine or check valve sizing upon receipt of pertinent information. Bulletin 200, issued by the Hammel-Dahl Company, Dept. CP, 243 Richmond St., Providence 3, R. I. When inquiring specify CP 8430 on handy form, pages 2 and 3.

JULY, 1950

SHARPLY REDUCES COSTLY BREAKAGE—

# CHASE SHARKRAFT

Built to TAKE it!

## THE ALL-CRINKLED MULTIWALL BAG

Breakage is costly in many ways . . . to you, to your customers! All plies of Chase SHARKRAFT are crinkled to give "shock-absorbing" elasticity, assuring much greater resistance to breakage! The "shark-skin" crinkling of SHARKRAFT provides a sure grip—makes for easier handling and better stacking qualities. Available in choice of 2 to 5 plies. Furthermore, you'll find that the sharp, colorful printing and the attractive appearance of SHARKRAFT bags help stimulate the sale and acceptance of your product. Get the facts on this better container . . . Chase SHARKRAFT . . . mail coupon TODAY!

### THE IDEAL CONTAINER FOR

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- Fertilizers
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Gentlemen: Please send me more information about SHARKRAFT bags for the packaging of: .....

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When inquiring check CP 8431 on handy form, pgs. 2-3

# VESSEL DIVISION

# NEWS



# A.O. Smith

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**VESSEL LIFE INSURANCE.** Before this SMITH-lined Paper Mill Digester was manufactured, an extensive and comprehensive testing program was completed to be sure the proper alloy lining was selected for the corrosive service. An experimental digester was built and a great many "cooks" were run before the final decision was made.



➤ **USING A. O. SMITH MULTI-LAYER CONSTRUCTION WAS MORE ECONOMICAL** than single-plate construction in the manufacture of this 72 in. dia. by 80 ft. long water scrubber, at the same time providing a safer construction.



➤ **FIELD ASSEMBLY COSTS CUT TO A MINIMUM.** The SMITHway is to do the maximum amount of work possible in the shop on vessels too big to be shipped in one piece. All the shell courses on this 15 ft. dia. by 113 ft. long A. O. Smith Atmospheric Tower were tacked together in the shop to get more accurate and complete installation of the internals.



➤ **CONSISTENT QUALITY OF A. O. SMITH ELECTRODES** used in the manufacture of A. O. Smith Pressure Vessels is preserved by meticulous control procedures. By means of this X-ray diffraction machine, all raw materials used in electrode coating are checked for the presence of any foreign materials or impurities.

A. O. Smith Corporation, Dept. CP-750, Milwaukee 1, Wisconsin

Without obligation, send us the latest A. O. Smith Vessel Bulletins:

- ☐ V-44: Field Assembly of Pressure Vessels
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When inquiring check CP 8432 on handy form, pgs. 2-3

## NEW SOLUTIONS of processing problems

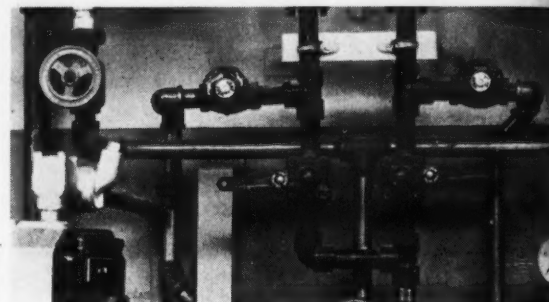
**Realizes 25% saving by adopting standard-design gate valves for vacuum, corrosive service . . .**

monel type meets all strict hygienic requirements for production of drug

**Problem:** In developing a process for production of an antihistamine drug, Ciba Pharmaceutical Products, Inc., Summit, N. J., required liquid and vacuum tight 3/4" gate valves with threaded ends for service where strong hydrochloric acid solutions were utilized. Conventional valve designs were not recommended for vacuum service. Ciba's prime objective was to adopt suitable standard valves, and thus avoid the expense of specially designed vacuum valves.

In addition, compliance with strict hygienic codes, freedom from contamination, and resistance to corrosive attack governed selection of such production equipment.

**Solution:** Engineers at Ciba, after testing various alloys and considering valve requirements involved, stand-



Monel gate valves handling corrosives are vacuum and liquid tight

ardized on monel. Complete installation was finally fitted with standard-design Figure 101 monel gate valves.

These valves differ from conventional types in assuring liquid and vacuum tightness, on two counts: 1) Ball and socket rotating-type disc gates replace solid wedge types. This fact enables positive seating, and reduces tendency toward galling. 2) Added thickness of discs prevents bending or dishing when closing, also permits reconditioning contact surfaces in the field.

**Results:** Valves have met leak-proof and vacuum tight requirements as well as all others demanded. Savings of approximately 25% were realized by adopting a standard design valve.

**Source:** Figure 101 monel valves are a product of The Cooper Alloy Foundry Co., Dept. CP, Hillside 5, N. J. . . . or for more information check CP 8433 on handy form, pages 2 and 3.

**Hard coating for plastics now available in all colors**

Four-page technical bulletin reports latest developments in plastic coating materials and methods. Available in a full line of both opaque and transparent colors, new coatings provide scratch and solvent resisting surfaces to polystyrene pieces as well as to vinyl, acrylic, phenolic, and some cellulose plastics. New improvements include faster drying, far less sensitivity to humidity, and types for spraying, dipping, screening, and printing.

"Logoquant" is issued by Bee Chemical Company, Dept. CP, 13799 S. Avenue O, Chicago 33, Ill. When inquiring specify CP 8434 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

## Finds Way to Dry Hygroscopic Capsule Shells to Smooth, Glossy Surface in All Weather

New Solutions  
OF PROCESSING PROBLEMS



Figure 1. Drying air having closely controlled moisture content is brought directly to newly formed gelatin capsules through flexible tubing

**PROBLEM:** Main plant of R. P. Scherer Corporation, Detroit, Michigan, manufactures millions of capsules every day by the rotary-die process. After being formed, shells of capsules are quite soft, and requires drying to yield sparkling, smooth surfaces demanded by consumers. Drying operation was complicated by the hygroscopic nature of animal gelatin, a principal shell ingredient, and became a startling bottleneck in the company's production.

Various methods of drying were tried. 1) Circulating air over trays of capsules with electric fans was tried and found fairly satisfactory during dry weather. During humid summer weather, however, the plant soon choked up with trays of partially dried capsules. This usually results in a high percentage of defective capsules as "rejects" and "leakers." 2) Warm-air drying was immediately ruled out because warm,

**Production bottlenecks unknown with absorption-type system which maintains 80°F atmosphere at 25% RH**

humid air has little drying effect, also because the capsules begin to melt at about 100°F.

3) Moisture removal by refrigeration and condensation was investigated, but disregarded due to the high operating costs involved in attaining required drying. Low temperatures usually make capsules hard and brittle as well as slow to release their moisture.

**Solution:** Experience showed that an atmosphere of about 80°F with a moisture content of 35 grains per pound (25% relative humidity) was not harmful to capsules. This atmosphere, in fact, produced very satisfactory drying action. Accordingly, a practical solution to the moisture control problem was thought to be a system which would remove moisture from the air by utilizing the absorptive properties of some material. The Kathabar system developed by the Surface Combustion Corporation, Toledo, Ohio, was found most practical for this installation.

System employs drying tunnels in which moisture content and temperature of air are held at prescribed values. Moisture is either added to or removed from air as required. Absorbent used is Kathene solution, composed largely of lithium chloride. System, in addition to being applied to the drying operation, is now also applied to capsule-forming operations, inspection and material handling rooms, and general office spaces.

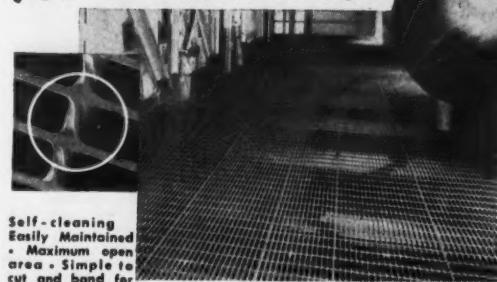
Kathabar installation here includes a number of compact individual units, several compact booster units, and a large central installation. Together, these remove about 1500 pounds of water from the air each hour during humid weather.

(Continued on next page)



Figure 2. This is an inspection room where finished capsules are checked before packaging. Along walls on left are doors to drying tunnels, in which drying conditions are held at precisely 80°F and 25% relative humidity.

## Electroforged into one piece for **STRENGTH**



Self-cleaning  
Easily Maintained  
• Maximum open area • Simple to cut and bend for fitting around obstacles • Adaptable to many uses.

## and **SAFETY**

**NON-SLIP — the twist does the trick** • Maximum safety and strength... that's the ideal combination in Blaw-Knox electroforged Steel Grating. Each individual joint is electrically forged together in a union stronger than the surrounding metal! The twisted bar construction gives a firm grip on shoe soles, makes slipping impossible.

WRITE FOR BULLETIN 2296

**BLAW-KNOX DIVISION of Blaw-Knox Company**  
2076 Farmers Bank Bldg., Pittsburgh 22, Pa.—Offices in Principal Cities

**BLAW-KNOX** ELECTROFORGED STEEL  
**GRATING**

When inquiring check CP 8435 on handy form, pgs. 2-3

## MAN-HOURS CUT IN HALF

— storage space increased 20% with

## BAKER TRUCK

A typical case history of improved WAREHOUSE HANDLING with a BAKER type FG (Light-weight, low-cost) FORK TRUCK



**MITCHELL SALES and STORAGE, Inc.,** of Fort Wayne has cut labor costs and increased available storage space by substituting a Baker Truck for hand methods. Quantity movements of 100 lb. bags of flour, sugar and other items from and into box cars and highway trucks, and stacking to the ceiling storage are now handled in unit loads by the Baker Truck. Formerly each bag had to be man-handled at least twice to complete in and out movements. In addition to a 50% cut in man-hours, stacking bags 12 instead of 10 high has added 20% effective storage space. Mitchell estimates that the truck, now 8 months old, paid for itself the first month it was in service.

Similar savings may be possible in your plant or warehouse. A Baker Material Handling Engineer will show you how.

**BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Company**  
1208 West 80th Street • Cleveland 2, Ohio

**Baker** INDUSTRIAL TRUCKS

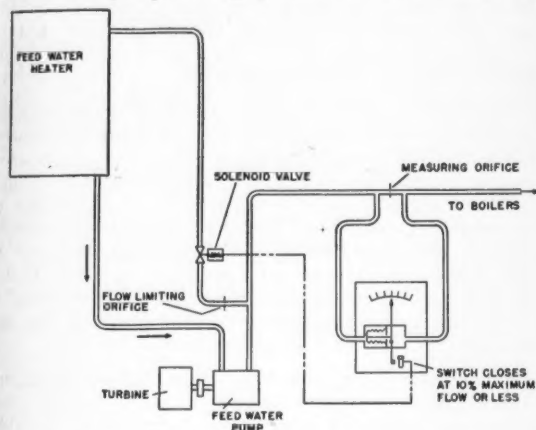
When inquiring check CP 8436 on handy form, pgs. 2-3



## NEW SOLUTIONS of processing problems

when the flow was cut off, the turbine-driven feedwater pump would pump the same water over and over again, thrashing it to a higher and higher temperature until it became steam, locked the pump and damaged the pump seals (if not the shaft and impellers). When this happened, the pump had to be shut down while parts were replaced or repaired.

A partial solution was achieved by erecting a pipe by-pass which allowed the water to circulate between feedwater heater and pump during periods of low demand for



Reveals operating principle of pump by-pass controller

feedwater. This by-pass was cut in by hand-operated valve when an alarm connected to the feedwater regulator sounded. However, because of the distance of the pump from the boiler room, operating personnel were not always able to reach the valve in time to save the pump seals.

**Solution:** Company engineers discussed the problem and reached the decision that they needed equipment which would automatically cut in the by-pass during periods of low feedwater demand. The equipment that was installed is indicated on the schematic drawing.

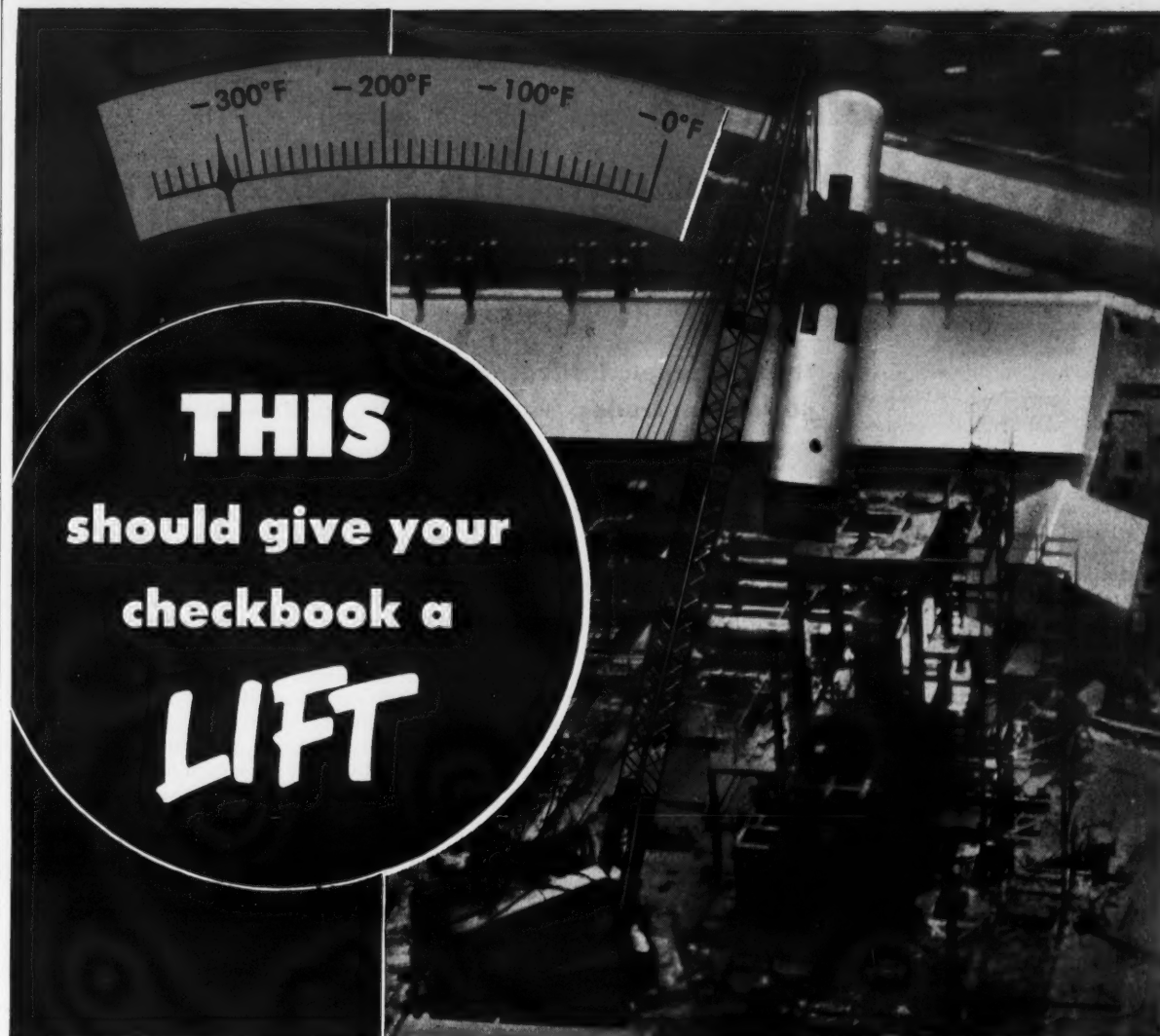
A metallic bellows which responds to differential pressure changes at the measuring orifice actuates the electric switch at 10% of maximum flow. The solenoid valve on the by-pass is then opened and the feedwater is allowed to circulate between the heater and pump.

**Results:** There has been no damage to pump due to lack of feedwater by-pass since the controller was installed last fall. The engineers of Pullman state that the equipment has paid for itself repeatedly.

**Source:** This pump by-pass controller installation was developed in cooperation with The Hays Corporation, Dept. CP, Michigan City, Ind. . . or for more information check CP 8439 on handy form, pages 2 and 3.

### Flakes and cools chemicals

Flakers for continuously cooling and flaking chemicals are described in a profusely illustrated 16-page catalog. Liquids or molten materials are applied to a revolving cooling drum where they solidify and are removed by a stationary knife, emerging flakes or granular materials. Various styles and types are discussed: conditioning rolls, enclosed flakers, twin and double drum, and pilot plant flakers and cooling drums. Catalog 352, issued by the Buřlovak Equipment Division of Blaw-Knox Company, Dept. CP, Buffalo, N. Y. When inquiring specify CP 8440 on handy form, pages 2 and 3.



Ordinarily it would take two cranes to lift this oxygen plant bubble cap tower into position. But this is no ordinary tower. Made of Alcoa Aluminum, it weighs half as much as towers of heavy metals . . . handles far easier in fabrication, shipment and installation.

Also Alcoa Aluminum gets stronger and tougher as temperatures drop. It costs 25 to 50% less than other materials suitable for sub-zero processing.

### Bubble Cap Towers of Alcoa Aluminum are now handling these chemicals

Formaldehyde	Furfural	Oxygen
Naval Stores	Benzene	Nitrogen
Coke Oven Gases	Naphthalene	Liquid Air
Hydrocyanic Acids	Solvent Naphtha	Acetone

Aluminum bubble caps are also used in many petroleum applications.

For more information, mail the coupon below to: ALUMINUM COMPANY OF AMERICA, 1475G Gulf Building, Pittsburgh 19, Pennsylvania.

Gentlemen:

Please send more information on aluminum's properties and applications for sub-zero process equipment.

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# ALCOA

# ALUMINUM

When inquiring check CP 8441 on handy form, pgs. 2-3

# More Selective for Aromatic-paraffin Separations Than Any Solvent Known, States Report

**Three dipropionitriles are applicable to refining of petroleum crudes, vegetable oils, and wood rosins**

**USES:** Compounds are offered as selective solvents for separation of aromatics from paraffins, and for separation of aromatic mixtures. Derivatives find applications as plasticizing agents and preservatives. Insecticides and intermediates are other potential uses. All of these are amplified below.

**Features:** Dipropionitriles as solvents exhibit excellent selectivity between compounds having differing saturation. They are reportedly more selective for aromatics, relative to paraffins, than any other known solvent.

**Description:** Dipropionitriles available are  $\beta,\beta'$ -oxydipropionitrile,  $\beta,\beta'$ -thiodipropionitrile, and  $\beta,\beta'$ -iminodipropionitrile. Outstanding physical characteristics are tabulated below:

Property	$\beta,\beta'$ -Oxydipropionitrile	$\beta,\beta'$ -Iminodipropionitrile	$\beta,\beta'$ -Thiodipropionitrile*
Appearance, 25°C	colorless liquid	colorless liquid	white crystals
Boiling Point, °C			
1 mm Hg	120	140	
5 mm Hg	155	162	**
10 mm Hg	172	173	
Density, 30°C	1.0405	1.0165	1.1095
Viscosity, cp, 30°C	8.00	2.85	20.55
Flash Point (Tag. closed cup)	higher than 80 degrees Centigrade		
Solubility, gm/100gm at 25°C			
water	***	miscible	1
ethanol	miscible	miscible	10 (30°C)
acetone	miscible	miscible	soluble
chloroform	miscible	miscible	soluble
benzene	miscible	miscible	soluble
heptane	immiscible	immiscible	insoluble

\* Determined for alpha form.

\*\* Can be flash-distilled at pressures less than 4mm Hg and temperatures about 200°C.

\*\*\* Completely miscible above 64°C.

All three dipropionitriles undergo typical nitrile reactions of hydrolysis, esterification, and hydrogenation. Each, however, undergoes reactions which are characteristic of its particular structure; these will not be treated here.

For separation of aromatics from paraffins, counter-current extraction methods may be employed. Such extractions are applicable to refining of petroleum crudes, soybean oils, etc. Compounds having only slightly different degrees of unsaturation may be separated.

Studies indicate that the selectivity of the oxy material for removal of naphthalene from a paraffin stream is about 35 times greater than that of furfural, 27 times greater than dimethylformamide, and possibly 9 times greater than sulfolane. Mutual solubility of the dipropionitriles and paraffins is extremely small. Estimates are that paraffins are soluble in the oxy material only to the extent of about 0.1%. Ability to selectively extract aromatics from paraffins produces an extract nearly 100% pure in aromatic (after solvent removal)

## High-purity Monomer, Alpha-methylstyrene, Being Produced Commercially

**Opens door to many reactions formerly deemed unsatisfactory due to lack of purity**

**USES:** Copolymerizes with many other monomers to give products of improved heat and solvent resistance and other plastic characteristics.

The material has been used in making several synthetic rubber copolymers. A vulcanizate containing 80 parts butadiene to 20 parts alpha-methylstyrene appears to be

and a raffinate (paraffin layer) containing negligible amounts of solvent.

Isolation of pure and high-boiling olefins from saturated hydrocarbons, purification of butadiene, separation of aromatic fractions from the products of coal hydrogenation, purification of tall oil and rosin, and separation of products from the Hydrocol process are facilitated by the use of dipropionitriles. Calculations indicate that aromatics may be recovered from a 15% aromatic stream at a cost of about 1c per pound of pure aromatic, using the oxy compound.

Dipropionitriles aid separation of mixtures of aromatic or olefinic compounds in which the various components have nearly the same boiling point, which form azeotropes, or which are thermally unstable and thus cannot be fractionally distilled. Separation of a mixture of monomethyl aniline and dimethyl aniline is an example. About 200 theoretical plates would be required to separate by distillation into products of 95% purity. In contrast, only 6 or 8-stage extraction is required to attain this separation, using heptane and the oxy material.

Esters of the dipropionic acids are useful as plasticizers. Thiodipropionic acid is reported to be an excellent softening agent for Buna S and polyvinyl chloride. Thiodipropionic acid, the product made by hydrolysis of the thio compound, is useful in preventing rancidity of fats and edible oils. The oxy dinitrile is found to be an effective insecticide against pea aphids.

As intermediates, the dinitriles find value in the synthesis of wetting agents, antifreeze agents, pharmaceuticals, and other insecticides.

**Source:** Technical bulletin describing these compounds, and experimental samples are available from the American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . . or for more information check CP 8442 on handy form, pages 2 & 3.

superior to most butadiene-styrene vulcanizates. The alkylated styrene has the advantages of resistance to polymerization during storage as well as monomer recovery by distillation, and a reduced tendency to form the "popcorn" polymer with diolefine.

Polymers of alpha-methylstyrene are employed as plas

ticizers for various resins for a number of applications. The alpha-methylstyrene is advantageous in styrenated oil compositions for paints, enamels and printing ink vehicles. The reduced reactivity of the alkylated styrene enables it to perform as a moderator, resulting in preparation of a wider variety of homogenous products. Other uses include preparation of cumyl phenol; treating of cigarette paper; manufacture of impregnated tape, felt, textiles, etc.; preparation of ion exchange resins; and manufacture of polystyrene, using polymerized alpha-methylstyrene as a plasticizer.

**Features:** Available in tank car quantities as a high-purity, uniform-quality monomer. Because of the high purity, numerous reactions which were formerly unsatisfactory now hold promise.

**Description:** A typical batch of alpha-methylstyrene (AMS) will have the following properties: a boiling point of 165.38°C, melting point of -23.21°C, density of 0.9062 and flash point of 136°F. It is only slightly soluble in water (0.056%) and water is only slightly soluble in it (0.010%). A typical chemical analysis is given in table.

#### Typical Analysis of Commercial AMS

% AMS	98.5
Beta-methylstyrene	1.0
Aldehydes (as benzaldehyde)	0.023
Ketones (as acetophenone)	0.031
Chlorides	0.0029
Sulfur	0.0018
Polymer	Nil
Isopropyl Benzene	0.5
Phenyl Acetylene	0.0013

The compound does not polymerize as readily as styrene and, therefore, has increased stability and can act as a reaction moderator. It is made from propylene and benzene.

Uninhibited AMS polymerizes slowly in storage, and oxidizes slowly in air. Therefore, the liquid contains 10 to 20 ppm of para-tert-butylcatechol as an inhibitor and antioxidant as it is received. This small amount usually does not have to be removed before using the AMS for most industrial applications.

If an inhibitor-free monomer is required, the butylcatechol may be removed by washing with caustic solution and water and drying over white Drierite, or by distillation. Treatment with white Drierite alone removes about 90% of the butylcatechol.

Like other aromatic hydrocarbons, AMS is irritating to the skin. Complete toxicological studies are in progress, and so far it appears that AMS is very similar to the styrene monomer in toxicity. The tentative permissible limit for repeated exposure is about 440 ppm.

The monomer is flammable and forms explosive mixtures with air. Lower explosive limit is 0.90% by volume. Adequate ventilation and avoidance of flames, friction and static electricity are imperative.

Purified AMS, with or without catalyst, is more difficult to polymerize than styrene. Even at 250°C, only small amounts of unsaturated dimer and trimer are formed. Polymers of AMS exist in unsaturated and saturated forms, the latter being produced from the former by cyclization.

Many catalysts have been investigated, including concentrated sulfuric acid, phosphoric acid, stannic chloride, infrared, metal powders such as zinc, magnesium, nickel, and an oxygen compound of boron plus acetic acid.

Certain solid catalysts, such as activated bleaching earths, are used in polymerization, to give whole range of

(Continued on next page)

Jefferson

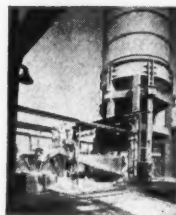
## Diethylene Glycol

### Excellent Quality for Many End Uses . . .

tobacco humectant  
manufacture of resins  
manufacture of plasticizers  
printing inks  
dehydrating agent for natural gas  
textile softener  
dyestuff solvent

### Available East and West in Convenient Lots . . .

from Port Neches, Texas, or Union, N. J.,  
in tank cars or 55 gallon drums.



Quicklime silo and lime slakers in ethylene oxide and glycol unit at Jefferson's Neches plant.

## Jefferson Chemical Company, Inc.

711 FIFTH AVENUE, NEW YORK 22, N. Y.



ESSENTIAL CHEMICALS FROM HYDROCARBON SOURCES

## Briefs

### New or unusual uses for Jefferson Chemicals

**A resinous condensation product** has been made by the reaction of one to two mols of beta-propionolactone with one mol of diethylene glycol in dioxane, at a temperature of 90-95°C.

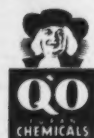
**Caprylic acid esters** useful as plasticizers for vinyl acetal resins can be prepared by reacting 300 g. of caprylic acid with 100 g. of diethylene glycol at 270°C.

**A saturated polyester** has been prepared by reacting one mol of a saturated dicarboxylic acid, such as adipic acid, with approximately one mol of a saturated dihydric alcohol, such as diethylene glycol, in the presence of an esterification catalyst while continuously removing water of condensation. Such an ester can be converted to an unsaturated resin by heating, and subsequently set up to a rubberlike product by further heating in the presence of an organic peroxide catalyst.

**Natural gas dew point depressions** of as much as 60°F. have been reported using concentrated diethylene glycol as a dehydrating agent without refrigeration. The agent is not corrosive and has a low freezing point, so that there is no possibility of solidification of the solution in the pipe line system.

*These briefs are abstracted from recent publication or U. S. Patent Office reports. These uses may suggest other applications of Jefferson Diethylene Glycol in your products or processes. Send for sample and further information.*

When inquiring check CP 8443 on handy form, pgs. 2-3



# FURAFIL\* is



## COMMERCIALY AVAILABLE, LOW IN COST...

Furafile is a free-flowing, pulverized organic material, readily available at modest cost throughout the year. It is capable of holding its own weight in water but is not hygroscopic.



Furafile is produced commercially at two plants (Furafile C at Cedar Rapids, Iowa and Furafile M at Memphis, Tennessee) and is shipped in carloads, bulk or bags.

### PROPERTIES: (Analyses on moisture free basis)

Color	Dark brown
Bulk density	30-35 lbs./cubic foot
Odor	Coffee-like
pH (water extract)	2-3
Cellulose (Bray method using 72% H <sub>2</sub> SO <sub>4</sub> )	38%
Residue from saccharification (lignin and resins)	42%
Ash	4-5%
Solubility:	
Water (hot)	16%
Acetone	20%
Ether	4%
Alcohol-benzene	14%

Established uses for Furafile are to condition salts and similar materials which tend to cake, and as a burnt-out filler or bulking agent where controlled ignition characteristics are important.

Furafile may also be useful to you as a source of carbon, as an absorbent for liquids, and as a filler.

The best way to learn the applicability of Furafile in a given possible use is by actual tests. A request on your business letterhead will bring you a sample and a copy of Technical Bulletin No. 123-B describing Furafile.

\*Trade Mark

**The Quaker Oats Company**

336 B THE MERCHANDISE MART  
CHICAGO 54, ILLINOIS

**CHEMICALS DEPT.**

When inquiring check CP 8444 on handy form, pgs. 2-3

## MATERIALS

(Continued from page 17)

polymers. Depending upon temperature and dilution, the products vary from colorless, oily liquids to glass-clear, brittle solids with molecular weight of 3000 to 4000. These polymers, mostly unsaturated, can be saturated with catalyst at higher temperatures, without changing molecular weight.

Unsaturated dimers have been obtained by polymerizing at high temperatures in the presence of Florida earth, titanium tetrachloride and boron trifluoride. Low molecular weight products may be made by polymerizing at elevated temperatures in the presence of a small amount of retrol, using polymerized AMS from a previous polymerization as the reaction medium.

At a pressure of 5000 atm and temperature of 100°C, AMS gives unsaturated polymers with molecular weight of 5600.

High molecular weight polymers have been prepared by solution polymerization at extremely low temperatures, with ionic catalysts. As the temperature of polymerization decreased from 20 to -100°C, the average molecular weight increased from 20,000 to 30,000. Below -100°C, the molecular weight increased abruptly, reaching 84,000 at -130°C.

The resulting polymer could be molded into clear, transparent pieces which were not distorted in boiling water and were resistant to gasoline. However, this type of polymer is inferior in impact strength to polystyrene of the same molecular weight.

The melting point of the polymer increased with molecular weight and finally leveled off at a value above 200°C for molecular weights above 30,000.

Source: Alpha-methylstyrene is a product of Plastics Division, The Dow Chemical Company, Dept. CP, Midland, Mich. . . . or for more information check CP 8445 on handy form, pages 2 and 3.

### Colorful enamel coat protects concrete surfaces . . .

film is non-porous, odorless, non-contaminating and resistant to abrasion, mold growth, reagents

Uses: Decorative coating that protects concrete surfaces from acids, alkalis and other corrosive substances.

Features: Forms non-porous, odorless, non-contaminating surface that is resistant to abrasion, mold growth, motor oil, corn oil, oleic acid, phosphoric acid, nitric acid, ammonium hydroxide and 5% sodium hydroxide.

Description: Hysol concrete floor enamels are solutions of inert synthetic resins that are thermally and chemically stable. Non-oxidizing and fast-drying, they provide a tough film which will not saponify.

The enamels are applied by conventional brushing procedure, average coverage being 350 sq ft per gal. A single coating is usually satisfactory. Before application, concrete should be free from all foreign matter; steam cleaning or scrubbing with an alkaline cleanser is best for cleaning the surface. Concrete floors that have been worn smooth should be etched for better bonding, color and texture. Muriatic acid or Sani Flush is recommended for doing the etching.

Available in iron red, gray and green.

Source: Houghton Laboratories, Inc., Dept. CP, Olean, N. Y. . . . or for more information check CP 8446 on handy form, pages 2 and 3.

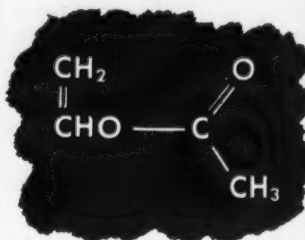
# NIACET

Trade Mark

UNPOLYMERIZED

## VINYL ACETATE

(STABILIZED)



BOILING RANGE

71.8° to 73°C.

Vinyl Acetate can be polymerized to form resins with exceptional bonding qualities for wood, glass, metal and fibre.

Vinyl Acetate can be used for synthesis of

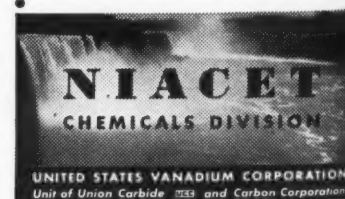
a-b-dichloroethyl acetate,  
b-monochloro ethyl acetate,  
b-chloro acetals,  
2-aminothiazole,  
chloroacetaldehyde  
and many others.

Containers:—

410 lb. drums

62,500 lb. tank cars

For further information write to:



Sales Offices:

926 Niagara Bldg. • Niagara Falls, N. Y.

When inquiring check CP 8447  
on handy form, pgs. 2-3

CHEMICAL PROCESSING

## MATERIALS

**Absorb ultraviolet but let visible light through . . .**

chemicals are used in outdoor coatings, transparent windows

**Uses:** Wherever a material is exposed to direct sunlight, causing deterioration. Some possible uses are in outside paints, in plastics and laminated glass for protecting window displays, protective waxes for cars or outdoor furniture, in plastic or lacquer coatings for outdoor furniture.

Also in dye solutions for drapes and carpets, for protecting canvas awnings, sails and convertible car tops, and for stabilization of cellulose esters.

**Features:** Intense absorption of ultraviolet light, and a sharp cut-off at the boundary between visible and ultraviolet.

**Description:** Two ultraviolet absorbers are furfuralazine and cinnamalazine. The first is not quite as efficient as the second, but has the advantage of having less color. In the concentrations mentioned below, it is essentially colorless.

A 0.001" film containing 1% cinnamalazine will filter out 99% of the ultraviolet radiation between 300 and 390 millimicrons. In a transparent film of the above concentration and thickness, transmission of visible light is substantially complete at 440 millimicrons.

**Source:** Products of Pilot Chemicals, Inc., Dept. CP, 47 Felton St., Waltham 54, Mass. . . or for more information check CP 8448 on handy form, pages 2 and 3.

### Caustic-alkali resistance of nickel, its alloys

Caustic-alkali resistance of nickel and its alloys is reported on in 23-page technical bulletin. Results of laboratory and production corrosion tests show performance of pure nickel, nickel-alloy irons, and non-ferrous nickel alloys in handling such materials as viscose rayon, soap, pulp, and paper. Test methods are included. Illustrations accompany text.

Technical Bulletin T-6 is issued by The International Nickel Company, Inc., Dept. CP, 67 Wall St., New York 5, N. Y. When inquiring specify CP 8449 on handy form, pages 2 and 3.

For more information on product advertised at right, specify CP 8450 . . . see information request blank between pages 2-3.

**TO KEEP  
ALKYD COSTS  
IN LINE WITH  
THE MARKET . . .**



**H**ERE'S news that should send any alkyd manufacturer running to the nearest teletype. On today's market, you can buy ADM's RO-10 Soya Fatty Acids considerably below whole oil. As a result you can produce RO-10 alkyds for less than comparable whole oil alkyds.

In addition, RO-10 Acids allow a wider choice of raw materials . . . simplify processing . . . assure a higher quality, more uniform product. Fast direct esterification increases kettle output. RO-10 Acids are made from recovered soybean oil . . . by distillation . . . and are remarkably free from the metallic soaps, hydroxy acids, aldehydes and other impurities often found in split acids.

You can order RO-10 or any other ADM vegetable fatty acids in combination with oils of any kind, in truckload, carload or tank car lots. That means nice extra savings!

Familiarize yourself with the chart at right. Then mail the coupon at the right, for samples and technical bulletins.

#### SPECIFICATIONS

Acid No. . . . .	195-205
Saponification No. . . . .	198-207
Iodine No. (Wijs) . . . . .	125 Minimum
Color (Gardner) . . . . .	6 Maximum
Wt. per gal. . . . .	7.52 lbs.

Take the Scientific Shortcut with

**ADM fatty ACIDS**

# buy RO-10!

...says Mr.  
**fatty acid**

You can always follow the market  
with the broad line of  
**ADM VEGETABLE FATTY ACIDS**

FATTY ACID TYPE AND GRADE	PROTECTIVE COATINGS	SYNTHETIC RESINS	INKS	PUTTY AND CAULKING COMPOUNDS	METALLIC SOAPS	LIQUID SOAPS	WAXES AND POLISHES	INSECTICIDES AND DISINFECTANTS	LUBRICATING GREASES	COSMETICS	PHARMACEUTICAL
<b>LINSEED</b>											
Water White . . . . .	X	X	X	X	X	X		X			
Regular . . . . .	X	X	X	X	X	X		X			
SM-500 . . . . .	X	X	X	X	X	X		X			
SM-600 . . . . .	X	X	X	X	X	X		X			
Essential Unsaturated Free Fatty Acids . . . . .											X
<b>SOYA</b>											
Water White . . . . .	X	X	X	X	X	X		X			
Regular . . . . .	X	X	X	X	X	X		X			
RO-4 . . . . .	X	X	X	X	X	X		X			
RO-10 . . . . .	X	X	X	X	X	X		X			
RO-115 . . . . .	X	X	X	X	X	X		X			
<b>CORN-SOYA</b> Double- Distilled . . . . .				X	X	X		X			
<b>CORN</b> Double- Distilled . . . . .				X	X	X		X			
<b>COTTONSEED</b> Double- Distilled . . . . .	X			X	X	X		X			
<b>COCONUT</b> Double- Distilled . . . . .	X				X	X		X		X	

ARCHER DANIELS MIDLAND COMPANY  
600 Reanoke Building • Minneapolis 2, Minnesota

Please send me the following:

- ☐ TECHNICAL BULLETIN 78, RO-10 SOYA FATTY ACIDS  
☐ SAMPLES OF RO-10 SOYA FATTY ACIDS  
☐ TECHNICAL BULLETIN 79, ALKYDS FROM FATTY ACIDS

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COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

# JOBS WANTED!

**FOR A  
LOW-COST  
SYNTHETIC  
RESIN**

**BAKELITE BCU-22 Liquid Urea Resin is now being shipped in tank cars anywhere in the United States at 7½¢ a pound!**

THIS LOW PRICE—1¼¢ per pound less than the cost in drums—gives new opportunities for cutting your production costs.

BCU-22 is used as a top-quality adhesive by such leading furniture and plywood manufacturers as Drexel Furniture Company, Johnson-Carper Furniture Company, U. S. Plywood Corporation, American Furniture Company, and Darlington Veneer Company.

It is currently being evaluated in other fields for such diversified applications as paper sizing, cloth treating, fortifying starch adhesives for paperboard and corrugated containers, and bonding wood waste.

You, too, may have a job for BCU-22 which may help you to produce a better product at lower cost. Write us today for further details on BCU-22. Learn how you can realize a 300% return or better on a \$3,000 investment if you install storage tanks and pipe lines to accommodate 60,000 pounds or more per month of this versatile synthetic resin. Address Dept. AM-35

**BAKELITE DIVISION**  
Union Carbide and Carbon Corporation  
30 East 42nd Street, New York 17, N. Y.

**BAKELITE**  
TRADE MARK  
**BCU-22**  
**UREA RESIN**

When inquiring check CP 8451 on handy form, pgs. 2-3

Viscosity Pour Point Specific Gravity Mineral Oil Content Color Sodium Sulfonate Content A.S.T.M. Penetration

*Write your own Specifications*

**PENN-DRAKE**

## Specialized Petroleum Service

If a regular petroleum product won't do... write your own specifications and Penn-Drake will follow them exactly. Penn-Drake products, all of which may be varied in some respects, include: White Oils, Petrolatums, Petroleum Sulfonates, Insecticide Bases, Waxes, Motor Lubricants and Fuels.



**PENNSYLVANIA REFINING COMPANY**  
Butler, Pennsylvania

Branches: Cleveland, Ohio and Edgewater, N. J. Representatives in all Principal Cities

When inquiring check CP 8452 on handy form, pgs. 2-3

## MATERIALS

**Protects concrete, stucco and brick against weather...**

silicone-base solutions effective as waterproofing agents

**Uses:** Waterproofing concrete and cinder blocks, porous stucco and sandlime brick. Permits oil-painting on concrete with lasting results.

**Features:** Treated concrete blocks were rigorously tested under conditions simulating 12 to 15 years of normal weathering. The blocks were found to be completely dry at the end of test runs. These tests paralleled NBS tests.

**Description:** Stopall type C and CP are based on General Electric silicones. Coverage: 100-150 sq ft per gal.

**Source:** Made by Stopall Waterproofing Manufacturers, Inc., Dept. CP, Kalamazoo, Mich. . . . or for more information check CP 8453 on handy form, pages 2 and 3.

**Transformer oil's life is 14 times longer with added inhibitor...**

liquid has undergone extensive tests on new and used oils

**Uses:** Inhibits sludging of transformer oils. Effective in new oils and in oils reclaimed by clay treatments of various types.

**Features:** Has been found to increase life of transformer oils as much as fourteen-fold. In comparative tests with uninhibited oils, it was revealed that the rate of break from the end of the induction period to the sludging stage was equal to or less than that for the uninhibited oils.

Tests on used oils indicate that greater oxygen stability can be obtained by using less clay and more inhibitor. Contrary to popular belief, large amounts of clay do not have to be used to bring about susceptibility to the inhibitor.

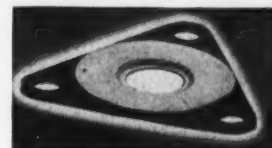
**Description:** The active ingredient in Impruvol 20, di-tert-butyl-paracresol, has long been used as an inhibitor in turbine oils, but has not been applied to transformer oils for two reasons. First, the product was a solid; second, sufficient experimental data was not available.

Impruvol 20 is in liquid form and has been tested with transformer oils in laboratory and field. There follows a brief summary of one series of lab tests.

Four commercial uninhibited transformer oils were tested, with and

**New plastic inert to practically all chemicals, serves up to 500° F.**

Du Pont "Teflon"® tetrafluorethylene resin superior to all other materials for gaskets and packings in chemical resistance, also has outstanding electrical properties.



**Uses:** Gaskets, pump and valve packings; electrical insulation for motors, generators, conductors, and for high-frequency, high-temperature and high-voltage wires and cables.

**Features:** "Teflon" is inert to all chemicals except molten alkali metals and fluorine under extreme conditions, has zero water-absorption, withstands temperatures ranging from -90°F. to 500°F., has an extremely low coefficient of friction. Tough, flexible "Teflon" outlasts other gasket materials up to 25 times and other packing up to 300 times! For electrical uses, it has a low dielectric constant (2.0) and a power factor of 0.0005. Both are constant over the entire frequency measured to date—60 cycles to 30,000 megacycles.

**Description:** "Teflon" is available in sheets, rods, tubes, tape, molding powder and suspensions, which, on evaporation, yield continuous film. On request, Du Pont will recommend molders or fabricators of finished parts. For further information and booklet, "TEFLON in Gaskets and Packing," write to—

**Source:** E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept.—Plastics Sales, 9523-E Nemours Bldg., Wilmington 98, Del.



BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY

(Advertisement)

When inquiring check CP 8454 on handy form, pgs. 2-3

**A DOW CORNING**  
**DC**  
**ANTIFOAM**  
**A**  
**SILICONE PRODUCT**

*The most versatile and efficient defoamer on the market*

**Dow Corning**  
MIDLAND • MICHIGAN

Write Dept. G today for free sample

When inquiring check CP 8455 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## MATERIALS

without the inhibitor. The uninhibited oils sludged in five days or less. Addition of 0.5% inhibitor extended the life to 19 to 37 days, depending upon qualities of the oil. Higher percentages increased test life to as much as 70 days.

Neutralization numbers and amounts of chloroform-soluble sludge were approximately the same at the conclusion of each test.

**Source:** Development of Koppers Company, Inc., Dept. CP, Pittsburgh 19, Pa. . . . or for more information check CP 8456 on handy form, pages 2 and 3.

### Work suits 50% lighter than rubber-coated type

Line of work suits presented in catalog includes jackets and overalls made in choice of two materials — rubber-coated fabric, and a flexible material known as Koroseal. Clothing made from latter material resists most reagents except strong organics, has cemented and rolled seams, and is 50% lighter than rubber-coated type.

Rubber-coated suits are supplied in two weights of material, .022 and .019 gauge. Seams are vulcanized and leakproof. Coating does not peel or crack; resists corrosive chemicals, oils, and greases. Catalog 12005 describes, illustrates, and specifies clothing; is issued by The B. F. Goodrich Company, Dept. CP, Akron, O. When inquiring specify CP 8457 on handy form, pages 2 and 3.

### No trouble to weld thin aluminum

High-strength, thin-flowing welding alloy, for lap, corner, and square-butt joints on aluminum, bonds at approximately 150° below the melting point of aluminum — avoiding melting of thin sections. Form Eu-31 includes procedural and technical data, and a list of alloys for welding aluminum sheet to aluminum castings, joining aluminum to other metals, joining and filling with lead-free alloys, and arc welding of aluminum.

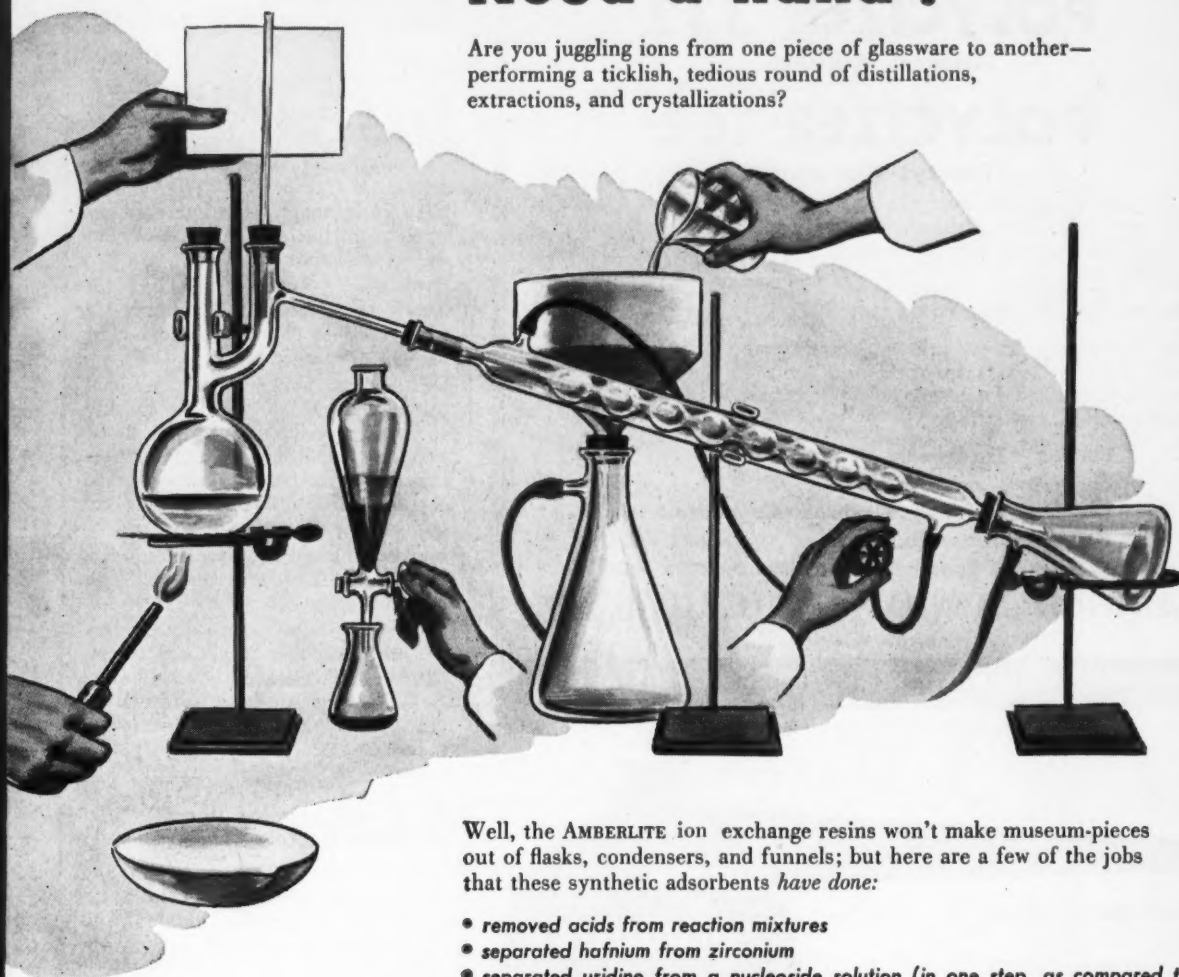
Issued by the Eutectic Welding Alloys Corporation, Dept. CP, 40 Worth St., New York 13, N. Y. When inquiring specify CP 8458 on handy form, pages 2 and 3.

For more information on product at right, specify CP 8459 . . . see information request blank between pages 2-3.



## Need a hand?

Are you juggling ions from one piece of glassware to another—performing a ticklish, tedious round of distillations, extractions, and crystallizations?



Well, the AMBERLITE ion exchange resins won't make museum-pieces out of flasks, condensers, and funnels; but here are a few of the jobs that these synthetic adsorbents *have done*:

- removed acids from reaction mixtures
- separated hafnium from zirconium
- separated uridine from a nucleoside solution (in one step, as compared to the 17 steps previously used)
- isolated vanillin from sulfite waste liquors
- removed argols from grape wastes
- recovered alkaloids
- purified organic nitriles
- prepared vanadium pentoxide sols
- hydrolyzed nitrile groups to amides
- aided in analysis of chromium compounds, radio-elements, riboflavin
- aided in the fractionation of blood

Next time you say to yourself, "I need another pair of hands," investigate the AMBERLITE cation and anion exchange resins. Jot down your problem—concentration, isolation, or purification—and send it to Dept. CPI-5. Suggestions and literature (and samples, if you say so) that may help you save time and increase your yield will be in your laboratory in a few days.

CHEMICALS



FOR INDUSTRY

**ROHM & HAAS COMPANY**

THE RESINOUS PRODUCTS DIVISION

Washington Square Philadelphia 5, Pa.

The Resinous Products Division was formerly The Resinous Products & Chemical Company

AMBERLITE is a trade-mark, Reg. U.S. Pat. Off.  
and in principal foreign countries.

**Announcing . . .**

## POLYCIZER 332

(Diethyl Adipate)

## POLYCIZER 162

(Diethyl Phthalate)

Here are two new plasticizers that can contribute vital improvements to your vinyl and other synthetic resin and rubber products—

**and reduce production costs, too!**

They are free from odor, low in acidity and practically colorless. They will provide good heat and light stability, better low temperature properties, higher loading without exceeding hardness requirements.

- \* For Vinyl Extrusions . . .
- \* For Heavy-Loaded Sheet . . .
- \* For Film Sheeting, Plastisols, Organosols . . .
- \* For Oil-Resistant Rubbers . . .

**Write Today for Complete Data.**

**HARWICK STANDARD CHEMICAL CO.**

AKRON 5, OHIO

BRANCHES: BOSTON, TRENTON, CHICAGO, LOS ANGELES

When inquiring check CP 8460 on handy form, pgs. 2-3

## MATERIALS

**Air-drying cycle of synthetic enamel is short . . .**

finished parts can be stacked within 15 minutes

**Uses:** Coating for wood, metal and fiber products. Provides hardness of a baked-on synthetic, but air-dries as fast as lacquer. High build, good gloss, tough film and high resistance to alkalis, fats, greases and smoke are reported.

**Features:** Products finished with the synthetic may be handled and stacked within 15 minutes and packed in 3 to 4 hours.

**Description:** Synthetic enamel provides a hard top surface quickly and eliminates the need for a 24-hr period of air-drying. Manufacturer calculates that finishing time can be cut 40% and storage and handling requirements 50% by its use.

May be polished to a hard gloss. Retains color and gloss under high humidities.

**Source:** Base Y 2054 is a product of United Lacquer Mfg. Corp., Dept. CP, 1001 W. Elizabeth Ave., Linden, N. J. . . . or for more information check CP 8462 on handy form, pages 2 and 3.

### Sweeping, priming floors prepares for resurfacer

Merely sweeping broken places and priming of worn concrete, brick, wood, or composition floors is all the surface preparation needed for application of resurfacer. No floor chopping is necessary; resurfacer bonds to existing surfaces, even when spread to a featheredge. Resulting surface is tough, resilient, and non-skid; will withstand heavy traffic.

Features and application are covered in 4-page, 2-color illustrated folder entitled "No Floor Chopping", issued by the Stonhard Company, Dept. CP, 1306 Spring Garden St., Philadelphia 23, Pa. When inquiring specify CP 8463 on handy form, pages 2 and 3.

### Magnesium bridgeplates pictured in use

Sturdy, lightweight magnesium bridgeplates are described in two-color folder. Photographs show different styles of equipment in actual use. "Magcoa Dockboards", issued by Magnesium Company of America, Dept. CP, East Chicago, Indiana. When inquiring specify CP 8463A on handy form, pages 2 and 3.

*Federated first  
for Lead Products*

**Asarco Sheet Lead . . .** All commercial weights and sizes. Chemical . . . Tellurium Chemical . . . Antimonial.

**Asarco Lead Pipe . . .** All commercial sizes. Special sizes on request. Chemical . . . Tellurium Chemical . . . Antimonial.

**Asarco Lead and Lead Lined Valves**  
• • • Split Type "Y" and "Angle", Standard "Y", Gate, Check, Hard Lead "Y", Plug and Seat.

**Asarco Lead Fittings . . .** Elbows, Crosses, Tees, "Y's", (with plain ends, with flanges on, or for flanging in the field). Chemical and Antimonial.

**Asarco Lead Wool . . .** 5/8" rope in 50 lb. waterproof bags.

**Asarco Lead Specialties . . .** Extrusions and Castings to specification.

See Federated also for Lead Lined Pipe  
Lead Lined Fittings, Lead Lined Flanges

*Federated Metals Division*

AMERICAN SMELTING AND REFINING COMPANY,  
130 BROADWAY, NEW YORK 5, N. Y.



When inquiring check CP 8464 on handy form, pgs. 2-3

**ISOPROPENYL ACETATE**  
CH2=C(CH3)COCH3  
B.P. at 760 mm: 97.5°C.  
Acetylating Agent

**ETHOXYPROPIONALDEHYDE**  
C2H5OC2H2CHO  
B.P. at 760 mm: 134°C.  
Chemical Syntheses

**ETHYL n-BUTYL ETHER**  
C2H5OC4H9  
B.P. at 760 mm: 91.4°C.  
Extraction Agent; Reaction Solvent

**2-BUTYL OCTANOL-1**  
C6H13CH(C4H9)CH2OH  
B.P. at 760 mm: 255.8°C.  
Raw Material for Surface Active Agents

**new  
products  
from  
CARBIDE**

### AVAILABILITY:

pilot plant quantities now; larger amounts on reasonable notice. For samples and additional information, call or write:

### CARBIDE AND CARBON CHEMICALS DIVISION

UNION CARBIDE AND CARBON CORPORATION



30 E. 42nd St., New York 17, N.Y. Offices in Principal Cities  
In Canada: Carbide and Carbon Chemicals, Limited, Toronto

When inquiring check CP 8461 on handy form, pgs. 2-3

**PROTECT TANKS & PIPES  
with McDOUGALL-BUTLER  
PAINTS**

### Hardcote 4-Hour Dry

Here's the quick-drying gloss finish that resists water, alkalis, chemical fumes and weather. Used by many leading chemical processing plants for protecting large and small tanks located both inside and outside. Bright, lasting Hardcote colors also ideal for pipe line identification, safety area markings and other surfaces. Send for complete information today!



**McDOUGALL-BUTLER CO., INC.**  
BUFFALO, NEW YORK

Branches: Auburn, Maine; Washington 4, D. C.; Salem, Mass.

When inquiring check CP 8465 on handy form, pgs. 2-3

CHEMICAL PROCESSING

### No gel reaction between primer pigments and resin vehicles . . .

lead phosphate pigments used safely in presence of resin vehicles having free carboxyl groups

**Uses:** Rust-inhibitive primer pigments for the paint and varnish industry.

**Features:** Pigments are non-reactive toward resin vehicles containing free carboxyl groups.

**Description:** Two white lead pigments are being offered: trilead orthophosphate —  $Pb_3(PO_4)_2$ , and dilead pyrophosphate —  $Pb_2P_2O_7$ .

Conventional rust-inhibitive pigments (zinc and lead chromates, and red lead), which are generally basic in nature, readily react with free carboxyl groups of resin vehicles, and the entire composition often sets up to an unbreakable gel.

Both trilead orthophosphate and dilead pyrophosphate are non-reactive with Vinylite VMCH (a polyvinyl chloride-acetate copolymer modified with a dicarboxylic acid). Gelation does not occur when these lead phosphates are used with this resin. Pigments do not function, however, as heat and light stabilizers. Properties of these lead phosphates are tabulated below:

	Trilead Orthophosphate	Dilead Pyrophosphate
Specific gravity	6.42-6.43	4.95-5.09
Oil absorption, ASTM	17-18	18-19
Particle size, microns	6 and finer	6 and finer
Composition		
% PbO	79.4-80.9	75.0-77.0
% $P_2O_5$	18.0-18.6	23.0-25.0
% $Fe_2O_3$	0.02	0.02
% Ignition loss	less than 1.0	less than 1.0

**Source:** Products of the Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo. . . or for more information check CP 8466 on handy form, pages 2 and 3.

### Recent improvements adapt grease for severe requirements . . .

stable product for wide temperature range now has resistance to oxidation in presence of copper

**Uses:** Recommended for all ball, roller and needle bearings which normally operate at wide temperature ranges — from -65 to plus 250°F and, for short periods of time, up to 300°F. Typical applications are on surface control bearings, flexible shafts, actuators, universals and fire control instruments.

**Features:** Meets stringent Government specifications stating that the grease be suitable for wide range of operating temperatures and have excellent stability and water resistance, plus low evaporation characteristics, high resistance to oxidation in the presence of copper and resistance to copper corrosion.

**Description:** The original Uni-Temp grease met AN-G-25 Specification for a low-temperature aircraft lubricating grease. Recent improvements make the grease able to meet requirements for U.S. Army instrument lubricating grease (U.S. Army Specification 2-134). The product is reported to lend quietness and smoothness to bearing operation.

**Source:** Development of The Texas Company, Dept. CP, 135 E. 42nd St., New York, N. Y. . . or for more information check CP 8467 on handy form, pages 2 and 3.

## The ease of the REJUVENATED OIL WELLS

how Mallinckrodt  
helped production spurt  
as much as 167%!

To increase the flow of sluggish wells, petroleum engineers recently devised a new process of fracturing the surrounding underground formations by hydraulic pressure.

It required a unique gelling agent: one that would (1) quickly gel petroleum fractions (gasoline, kerosene, etc.) at outdoor temperatures with ordinary mixing equipment . . . (2) hold the gel for a few hours when pumped down the well under pressures extreme enough to crack rock and carry suspended sand deep into the fissures . . . (3) then allow the mixture to re-liquefy, leaving the sand to prop open the newly-made oil channels.

To meet all three tough requirements, Mallinckrodt laboratories developed an entirely new gelling agent. Result: higher oil production.

Whatever your products, you too may be able to cut costs, improve quality, increase output, if you utilize our 83 years' experience with more than 1500 fine chemicals.

What is your problem?

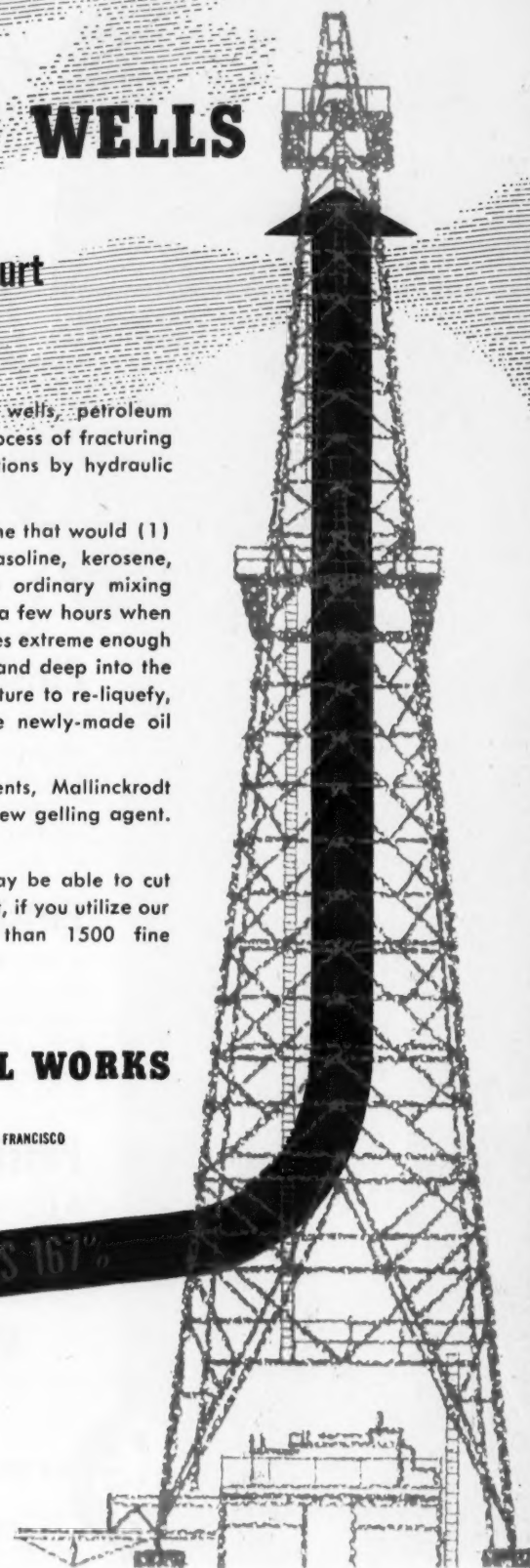


### MALLINCKRODT CHEMICAL WORKS

Mallinckrodt St., St. Louis 7, Mo. • 72 Gold St., New York, N. Y.

CHICAGO • CINCINNATI • CLEVELAND • LOS ANGELES • MONTREAL • PHILADELPHIA • SAN FRANCISCO  
Manufacturers of Medicinal, Photographic, Analytical and Industrial Fine Chemicals

PRODUCTION INCREASE AS MUCH AS 167%



When inquiring check CP 8468 on handy form, pgs. 2-3

*Fight him these 3  
Pittsburgh  
ways!*

### Pittsburgh Toxaphene-60

A standardized liquid emulsifiable concentrate containing 60% by weight (6 lbs. per gallon) Toxaphene, specifically designed for use where a water spray application is adaptable and practical. *Pittsburgh Toxaphene-60* spray concentrate possesses the advantages of marked residual action and is effective on a wide range of insects.

### Pittsburgh 45% Chlordane

A 45% Chlordane emulsion concentrate containing 45% by weight (4 pounds per gallon) Chlordane, prepared especially for dilution with water where spraying applications are required. *Pittsburgh 45% Chlordane Emulsion Concentrate* with its residual action for long protection is an effective control for many insects.

### Pittsburgh 15% Parathion

A 15% Wettable powder formulated under scientific control to give a uniform product with the ability to quickly disperse and remain in suspension. Consult local agricultural authorities concerning usage of Parathion.

PITTSBURGH AGRICULTURAL CHEMICAL COMPANY  
Empire State Building • 350 Fifth Avenue • New York 1, New York

Division of

PITTSBURGH COKE & CHEMICAL COMPANY  
1953 Grant Building • Pittsburgh 19, Pa.

COAL CHEMICALS, ACTIVATED CARBON, NEVILLE COKE, EMERALD COAL, PIG IRON,  
GREEN BAG CEMENT, CONCRETE PIPE AND PRODUCTS



When inquiring check CP 8469 on handy form, pgs. 2-3

## MATERIALS

**Flexibility of plastic ranges from elastic soft to brittle hard . . .**

gears made from the plastic outwear metal types

**Uses:** Replaces metal gears in such applications as heavy-duty lathes, household appliances, plating barrels, automotive timing devices, and dynamometers. Particularly suited for washing machine parts where resistance to detergents is required.

Potential applications for the plastic include fuel pump parts, battery cases, dies and jigs, valve seats, buckets for carrying chemicals, filter press plates, photostat separator plates, tote boxes, bearings, electrical insulators, water pump impellers, ignition coil housings, distributor caps, low-load and high-speed bearings and bushings.

**Features:** Plastic is said to bridge the gap between soft rubber and hard rubber. It is a high-strength material which is resistant to abrasion and chemicals, and at the same time can be produced in varying degrees of flexibility, ranging from elastic soft to brittle hard.

Gears made of the plastic have operated for more than a year in applications where metal gears have failed in a few weeks. Such plastic gears were molded in one piece to close tolerances, eliminating need for elaborate finishing operations.

**Description:** "Enrup" is a thermosetting plastic; available forms are sheets, rods, tubes, gear blanks, and molded parts in a wide range of hardnesses (with corresponding variations in characteristics). Properties for a typical compound are tabulated as follows:

Specific gravity	1.3	Modulus of Elasticity	180,000
Tensile strength, psi	4,200	Dielectric constant	9
Hardness, Rockwell M	65	Safe operating temp	0 to 250°F
Impact Strength, (ft lb/in notch)	1.3	Water absorption (% gain in 24 hr)	0.3

Good resistance to acids, alkalis, solvents, and gasoline is reported. Stability at high temperatures, and good impact strength are also reported. Plastic can be molded into complicated shapes either by compression or transfer methods.

**Source:** Product of the United States Rubber Company, Dept. CP, Rockefeller Center, New York 20, N. Y. . . . or for more information check CP 8470 on handy form, pages 2 and 3.

**Three molding phenolics show good impact strength . . .**

two are fabric-filled; other is nitrile rubber-bearing, wood-flour-filled type

**Uses:** Phenolic compounds for either compression or plunger molding.

**Features:** Three compounds fall into the high-impact type classification.

**Description:** Durez 13537 Natural and Durez 14482 Black are similar fabric-filled compounds, having impact strengths of 1.4 and 2.2 foot pounds per inch on the permit it to be either compression or plunger molded.

CHEMICAL PROCESSING

## MATERIALS

Mechanical and electrical properties are reported to be good. Flow properties of the latter, though impact strength is nearly double, are not appreciably affected.

Durez 14658 Black is a nitrile rubber-bearing, wood-flour-filled compound. It has the moldability of general-purpose materials. Because of its nitrile rubber content, it possesses improved impact strength and shock resistance. Its low modulus of elasticity ( $0.6 \times 10^6$  psi in tension) permits its use in thin sections around metal inserts. Molded parts are capable of withstanding repeated abuse without failure. This material can also be either compression or plunger molded; surface appearance is reported to be good.

**Source:** Product of Durez Plastics & Chemicals, Inc., Dept. CP, North Tonawanda, N. Y. . . . or for more information check CP 8471 on handy form, pages 2 and 3.

### Offers 2 isobutylamines as intermediates

semi-commercial quantities available for first time through this manufacturer

**Uses:** Chemicals are suggested for use as intermediates in the petroleum, pharmaceutical, plastics, rubber, and textile industries.

**Features:** Offered for the first time in semi-commercial quantities by this manufacturer.

**Description:** Two chemicals being offered are isobutylamine and diisobutylamine. Properties are shown as follows:

Isobutylamine      Diisobutylamine

Molecular weight (theory)	73.1	129.2
Color	water-white	water white
Specific gravity (20/20°C)	0.73-0.74	0.74-0.75
Percent amine (minimum)	97	98
Distillation:		
IBP (minimum)	64°C	—
95% between	64 and 71°C	134 and 141°C
FBP	75°C	—
Flash point	20°F	85°F
Viscosity, centipoise (60°C)	0.33	0.44

**Source:** Samples are available from Sharples Chemicals Inc., Dept. CP, 123 South Broad St., Philadelphia 9, Pa. . . . or for more information check CP 8472 on handy form, pages 2 and 3.

### Resumes large-scale production of neoprene latex tackifiers . . .

emulsions increase adhesion, bond strength and tack

**Uses:** Tackifiers are used with neoprene latices to increase specific adhesion, bond strength and tack.

**Features:** Manufacturer has resumed large-scale manufacture of these tackifiers.

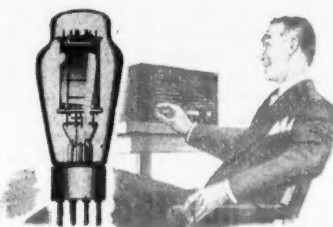
**Description:** Furnished as an emulsion. Special grades are supplied to obtain optimum properties with natural, GRS and neoprene latices.

**Source:** American Resinous Chemicals Corp., Dept. CP, Peabody, Mass. . . . or for more information check CP 8473 on handy form, pages 2 and 3.

JULY, 1950

**HIGHLY REACTIVE  
PHOSPHORIC  
ANHYDRIDE...**

another  
**V** **VERSATILE  
VICTOR  
CHEMICAL**



GAS DRYING AGENT—RADIO TUBES



CATALYST—ASPHALT  
IN IRRIGATION  
DITCHES



ORGANIC PHOSPHATES—INSECTICIDES



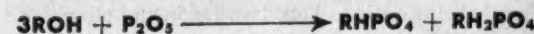
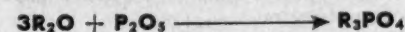
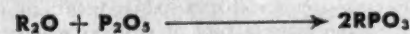
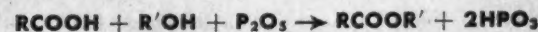
REAGENT IN METHYL  
METHACRYLATE RESINS

The properties of Victor phosphoric anhydride make it useful in many manufacturing processes. The following applications are typical and show the variety of uses which have been developed:

- **GAS DRYING AGENT**
- **CATALYST**
- **REAGENT IN METHYL METHACRYLATE RESINS**
- **ORGANIC PHOSPHATES**

If you are looking for ways to increase efficiency and reduce production costs, why not consider the application of Victor phosphoric anhydride? Write today for quotations, technical data, or samples.

### Typical Reactions of Victor Phosphoric Anhydride



**VICTOR CHEMICAL WORKS**

141 WEST JACKSON BOULEVARD • CHICAGO 4, ILLINOIS



**A. R. Maas Chemical Co., Division**  
4370 Ardine Street, South Gate, California

When inquiring check CP 8474 on handy form, pgs. 2-3

## MATERIALS

### Degreases metals, plastics, and wood when cold . . .

UL-approved fluid doesn't hurt most painted surfaces; cold degreasing avoids distortion of parts

**Uses:** Removes oil, grease, wax and moisture from metallic, plastic and wood surfaces. Can be used prior to anodizing, painting or lacquering, metallizing or electroplating. Dissolves the pitch and resins which hold optical lenses while they are being ground.

**Features:** Fluid is used in cold state so there is no contraction or expansion of parts during application. Safe, the degreaser is UL-approved and does not affect insurance rates.

**Description:** Metals or plastics are degreased by immersion, by dipping or brushing where grease is heavy, or by wiping. Parts with painted surfaces, with very few exceptions, can be degreased without harm to the paint. The fluid dries quickly.

**Source:** Metal degreaser Q 200 is made by Barco Chemical Products Co., Dept. CP, 701-703 S. LaSalle St., Chicago 5, Ill. . . or for more information check CP 8475 on handy form, pages 2 and 3.

### Initiates commercial production of powdered methylcellulose . . .

synthetic gum plays role in making cosmetics, paper, rubber, adhesives, and ceramics

**Uses:** Finds application as a thickener, binder, suspending agent, emulsion stabilizer, sizing agent, or as a coating agent in the manufacture of cosmetics, paper, rubber, adhesives, and ceramics.

Gum is being used as bulk laxative in the pharmaceutical industry, and is being used in non-flammable paint removers by the paint industry.

**Features:** Large-scale production of the material in powdered form is now in progress; this represents the first quantities in this form available in commercial lots, either in this country or abroad.

**Description:** Maker's methylcellulose is a water-soluble synthetic gum, and is designated as powdered Methocel.

**Source:** Product of The Dow Chemical Company, Dept. CP, Midland, Mich. . . or for more information check CP 8476 on handy form, pages 2 and 3.

### No odor from plasticizer for low-temp vinyls, other resins . . .

dioctyl adipate keeps vinyl films flexible to minus 70°C; has greater efficiency than DOP

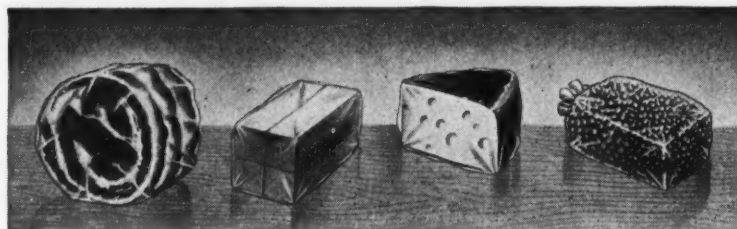
**Uses:** Primary plasticizer for vinyls and other synthetic resins. May be used singly or blended with other plasticizers for use in all conventional processing techniques including calendaring, extrusion and molding. Specifically designed for use in synthetic resin compounds which are subjected to low temperatures.

**Features:** Odorless. Vinyl films plasticized with this compound withstand temperatures as low as minus 70°F without becoming brittle; compounds plasticized with dioctyl phthalate type plasticizers tend to become brittle at minus 40°F.

**Description:** Clear, low-acid-content dioctyl adipate. Efficiency or solvent power is greater than that of



## SANTICIZER 141 MAKES VINYL FILMS SAFE FOR PACKAGING VARIOUS FOODS



Acceptance of Santicizer\* 141 by the Meat Inspection Division of the Bureau of Animal Industry, U. S. Department of Agriculture, as a nontoxic plasticizer for use in plastic products which may come in contact with meat, opens the way for the production of vinyl films that will bring improved packaging to margarine, meat, cheese, cranberries and numerous other food products.

In addition, the approval is assurance of the nontoxicity of Santicizer 141 in any application where such quality is desirable. Other qualities delivered by Santicizer 141 include: 1. Flame resistance. 2. Softness and drape. 3. Resistance to weather. 4. Low-temperature flexibility. 5. Light stability. 6. Low volatility. 7. Resistance to embrittlement. 8. Strength, elasticity and abrasion resistance. In many cases, Santicizer 141 improves processing.

## Emulsifiers step up efficiency of sprays

Insecticides, fungicides and herbicides can be used more efficiently, with economy and a minimum of effort, through the use of Monsanto emulsifiers and wetting agents.

Most toxicants used in formulations of herbicides, insecticides and mothicides cannot be dissolved in water. The practice is to concentrate these toxicants in oil

or an organic solvent and to use relatively small amounts of the formulations in water for spraying. Adding Monsanto emulsifiers and wetting agents to the formulations results in excellent emulsions that spread more evenly and have better adherence. If you are a formulator, mail the coupon for a free copy of Technical Bulletin No. P-142.



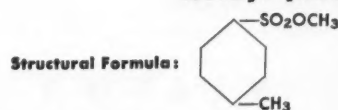
## Research Chemists' Corner

You may find something new here

If you are interested in new chemical discoveries, have a look at the specifications of Methyl-para-Toluenesulfonate. The specifications may suggest research that

will lead you to the development of a new chemical product . . . or the improvement of an existing product. If you want further information or a sample, mail the coupon.

### Methyl-para-Toluenesulfonate



**Molecular Weight:** 186.22

#### Properties:

**Crystallizing Point:** Approx. 25° C.  
**Color:** Approx. 100 APHA

**Chlorine:** 0.01% Max.  
**Acidity as TSA:** 0.01% Max.  
**Saponification Value** 186.0 — 187.5  
**Sp. Gr. at 25/25° C.** 1.225 — 1.227 (super-cooled liquid)

**Suggested Uses:** Dye intermediate, alkylating agent, catalyst for alkyd and other organic ester preparations, photographic chemicals, and pharmaceutical intermediate.

## Santomerse No. 1, all-purpose detergent and wetting agent, available in three densities

Extensively used as an ingredient in industrial cleaning compounds and as a wetting agent and surface-active agent, Monsanto Santomerse\* No. 1 now is available in three densities. These include a granular Santomerse No. 1, designed especially for easy mechanical blending.

Santomerse No. 1, which contains a minimum of 40% active material, does a thorough job of cleaning. It lifts out particles of grease and grime and holds them in suspension so that they cannot be redeposited. Santomerse No. 1 rinses out easily and thoroughly. It is effective in hard or soft, hot or cold water and in acid, neutral or alkaline solutions. It has been found effective in temperatures ranging from below zero to above the boiling point.

For additional information on Santomerse No. 1, mail the coupon or contact the nearest Monsanto Sales Office.

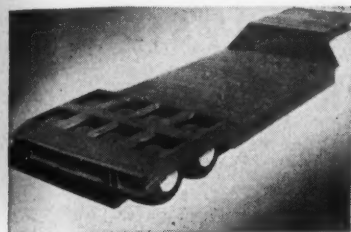
## HB-40 cuts plasticizer cost in clear vinyl film

Monsanto HB-40 (partially hydrogenated terphenyl) is practically water-white, making it attractive for plasticizing vinyl films that are transparent or which are to be brilliantly colored. Since HB-40 is extremely low in cost and since it can replace substantial amounts of the primary plasticizer, it can be used to reduce production costs. This savings in costs can be attained without a reduction in quality.

HB-40 is low in toxicity, gives a dry "hand," increases tensile strength, has excellent electrical properties and is highly resistant to moisture. It is nonmigratory.

HB-40 gives excellent results in extrusions, organosols and vinyl injection moldings as well as in films. For further information, mail the coupon or contact the nearest Monsanto Sales Office.

## Penta protects deck of 54-ton trailer



The deck of this 54-ton, drop-frame trailer has to be strong . . . and stay strong. That's why its manufacturer, La Crosse Trailer Corporation, La Crosse, Wisconsin, protected the 2 1/2" oak decking with a formulation of Monsanto Penta (pentachlorophenol). Penta protection is a clean treatment that guards wood against termites and other wood-boring insects . . . against the attack of fungi that cause wood decay. Penta can be applied by brushing, dipping or pressure methods. It is a chemically stable treatment that cannot be washed away by rain or ground water. Properly formulated penta treatment leaves wood paintable. If you have a problem of wood preservation, it will pay you to investigate Monsanto Penta. For further information, mail the coupon or contact the nearest Monsanto Sales Office.

## Mold in soap wrappers stopped by Santobrite

For as many years as manufacturers have been wrapping bar soaps, they have been plagued by the action of fungi in their wrapping papers. The use of as little as 2.0% (on weight of casein in size) of Santobrite\* (sodium pentachlorophenate, technical) controls these microorganisms in casein-coated papers. The addition of Santobrite in the paper stock and in the glues used for sealing also is recommended.

Investigate the possibilities of Santobrite as a means of solving your problems of mold in soap wrappers. For further information, mail the coupon or contact the nearest Monsanto Sales Office.



Timely Monsanto publications, listed below, will be sent to users of chemicals on request . . . free and without obligation. Indicate the literature you want on the coupon.

**Technical Bulletin No. O-33**—Contains information on Santolube\* 31, an additive for use in hydraulic oils, rust preventives, cutting oils, stationary engine lubricants and others.

**Technical Bulletin No. O-52**—Describes Niran,\* Monsanto's parathion, an agricultural insecticidal chemical.

**Technical Bulletin No. O-62**—Giving information on Santolene\* C, a newly developed metal corrosion inhibitor for light petroleum products.

**Technical Bulletin No. P-133**—Gives data on Sterox\* SE and Sterox SK, 100% active, liquid, nonionic-type, surface-active agents, wetting agents, emulsifiers and detergents.

**Technical Bulletin No. P-129**—Presents technical data on Sterox CD, a nonionic-type, liquid, 100% active emulsifier, detergent, surface-active agent.

**Technical Bulletin No. O-76**—Featuring Santomask\* II for "after-odor" control of paint, printing ink and other compositions.

**Technical Bulletin No. O-D-601**—Data on OS-16, flame-resistant hydraulic fluid.

**Technical Bulletin No. P-146**—Describing the use of Santomerse S for metal processing in acid media.

**Technical Bulletin No. P-101**—Featuring SA-326, an antioxidant for soaps.

## New furnace steps up phosphorus production

A new electric furnace, world's largest, is being built by Monsanto Chemical Company at Monsanto, Tennessee, where the company produces phosphorus of better than 99.9% purity. Monsanto converts phosphorus into phosphoric acid and various phosphates.

## Here's a new service for the food industry



A new laboratory to study the application of chemicals in foods has been set up by Monsanto at Anniston, Alabama, and is ready to work on such problems for the food industry. There is no charge for investigational work by the laboratory, one of the few such establishments in the chemical industry.

The illustration shows Dr. Roy E. Morse, food technologist, conducting an experiment in tomato canning. For further information, mail the coupon.

\*Reg. U.S. Pat. Off.

MONSANTO CHEMICAL COMPANY, 1704-G South Second Street, St. Louis 4, Missouri. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.



SERVING INDUSTRY... WHICH SERVES MANKIND

## MATERIALS

DOP. Thus, it should interest manufacturers who want resilience, pliability, drape and low-temperature flexibility in their finished goods.

Lab tests have shown that in paste resin compounding, the plasticizer forms a low-viscosity paste that is heat-stable at processing temperatures but imparts desirable low-temperature properties to the finished goods.

Chemical properties are:

Molecular Weight	370
Specific Gravity @ 25/15.5°C	0.925
Color (Hazen Number)	100 max
Boiling Range @ 5 mm Hg	98% between 210 & 218°C
Volatility (mg/sq cm/hr @ 150°C)	3.5
Refractive Index	1.4465
Viscosity @ 25°C (cp)	18
Lb/gal @ 25°C	7.70

**Source:** GP 233 is made commercially by B. F. Goodrich Chemical Company, Dept. CP, Rose Bldg., Cleveland 15, Ohio . . . or for more information check CP 8478 on handy form, pages 2 and 3.

## High-purity standard for alkali standardization, C-H-O analysis . . .

citraconic anhydride packaged in individual sealed "tubules" to maintain purity for years

**Uses:** Primary standard for standardization of alkali, and as a standard for carbon-hydrogen-oxygen determination using the combustion method. Manufacturer reports it as an excellent standard for materials having a low hydrogen content.

**Features:** Highly purified by repeated distillations. Since the product is an organic compound, its purity can readily be checked by boiling point, refractive index, freezing point and other tests.

The standard is supplied in "tubules" which maintain stability of the product for several years. Once opened, the remainder of the tubule's contents is discarded.

**Description:** Citraconic anhydride (hydrogen content 3.6%) titrates as a dibasic acid. A weighed sample is titrated in the usual way with phenolphthalein. The standard is non-volatile. It does react with water vapor in the air, but at such a slow rate that this is not detrimental to its use as a carbon-hydrogen standard.

A typical analysis to be expected when using this material as a C-H-O standard is:

Calculated	C—53.58%	H—3.60%
Found	C—53.56%	H—3.61%

Citraconic anhydride is now available in three grades: Technical grade for pilot plant use, research grade and analytical grade. The research grade contains two impurities — water and itaconic anhydride. The water may be eliminated by distillation. Itaconic anhydride is not an objectionable impurity because it has the same molecular weight, titration value and carbon-hydrogen analysis.

Other uses of the product are its use as a reagent for primary amines and for separation of alcohols from non-alcohols.

**Source:** Made by Smith-New York Co., Inc., Dept. CP, Freeport, Long Island, N. Y. . . or for more information check CP 8479 on handy form, pages 2 and 3.

INFORMATION: ☐ Santicizer 141, ☐ Santomerse No. 1, ☐ HB-40, ☐ Penta, ☐ Santobrite, ☐ Food Laboratory.

LITERATURE: ☐ Bulletin P-142 (Emulsifiers), ☐ Bulletin O-33 (Santolube 31), ☐ Bulletin O-52 (Niran), ☐ Bulletin O-62 (Santolene C), ☐ Bulletin P-133 (Sterox SE & SK), ☐ Bulletin P-129 (Sterox CD), ☐ Bulletin O-16 (Santomask II), ☐ Bulletin P-146 (Santomerse S), ☐ Bulletin P-101 (SA-326), ☐ Bulletin O-D-601.

SAMPLE: ☐ Methyl-para-Toluenesulfonate.

### MONSANTO CHEMICAL COMPANY

1704-G South Second Street  
St. Louis 4, Missouri

Please send information indicated at the left.

Name.....Title.....

Company.....

Street.....

City.....Zone.....State.....

When inquiring check CP 8477 on handy form, pgs. 2-3

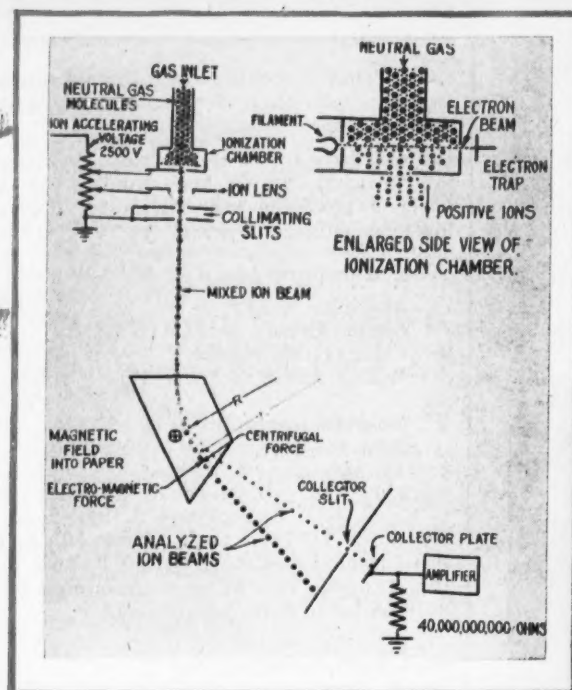
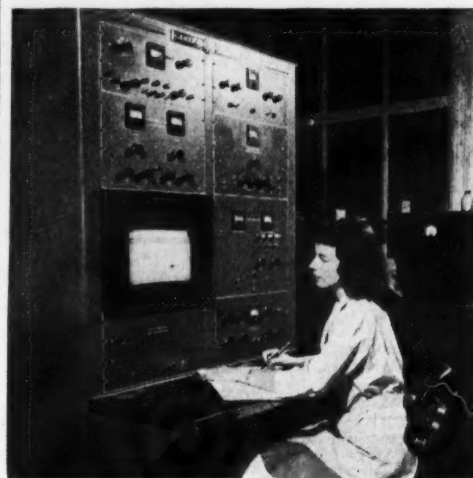


Fig. 1 Schematic diagram reveals operating principle of mass spectrometer

Fig. 2 Operator takes notes during mass-spectrometric analysis of unknown sample. These aid in later interpretation of patterns on strip-chart recorder



## Mass-spectrometric Analysis Speeds Up Lab Work

**Is now applied to process development, quality control and fundamental research on structure**

**D**URING the past few years, rapid strides have been made in automatic and semi-automatic methods of analysis.

The recording mass spectrometer has come into widespread use for analyzing gases, liquids and solids, not only as a laboratory research tool, but also as an instrument for process development work and quality control.

The General Electric recording mass spectrometer operates as schematically illustrated in Fig. 1. As denoted by its name, the mass spectrometer analyzes a gaseous mixture by ionizing the gas, and then sorting the ions according to their mass. The mass of an ion is the sum of the individual weights of its nuclear particles.

The gaseous sample is introduced at low pressure and constant flow into ionization chamber of spectrometer tube. The tube is maintained under high vacuum. In the chamber, some of the gas molecules of each constituent are converted to positively charged ions as a result of colliding with electrons emitted by a heated filament.

Other neutral molecules which are not affected by the electric field in the chamber are withdrawn by an exhaust pump. The ionized molecules are accelerated by high voltage and focused into a beam which passes through the narrow collimating slit into a region within the spectrometer tube where no electric field exists.

In the tube, the ion beam is deflected by a magnetic field whose intensity is automatically increased at a slow rate. The magnetic field causes ions of each mass to follow orbital paths of certain radii, as shown. With the field at a certain known intensity, only ions with a definite

specific mass will pass through the narrow collector slit, hit the collector plate and produce a measurable electric current.

As the magnetic field intensity is automatically varied by changing the current through the magnet, the mass spectrum is scanned. By correlating changes in magnet current with movement of a Brown ElectroniK recorder chart, the time divisions on the chart become indicative of the mass numbers being measured.

A precollector circuit is used for automatic adjustment of sensitivity and speed of recorder, in order to get optimum recording of each mass peak. This circuit contains a fine wire electrode that collects ions of the mass number under measurement, prior to their passing through the collector slit.

The current from this electrode constitutes a preliminary measurement of the abundance of the mass about to be measured. Thus, by means of suitable circuits, the recorder is made cognizant of the mass and its abundance before measurement so that the recorder sensitivity can be adjusted automatically accordingly.

The instrument can be used in making both quantitative and qualitative analyses. Accumulated data from the qualitative analysis of various molecular fragmentation patterns make it possible to estimate the primary constituents of an unknown mixture.

Usually a file of known compositions, classified as to position of prominent peaks and relative peak heights, is maintained for use in determining unknowns qualitatively. The apparatus is calibrated periodically with pure samples of all vital constituents.

Normal sensitivity is one part in 10,000; adjustments can be made under special conditions for a sensitivity of one part in 100,000. Chart sensitivity is automatically changed over a range of 30 to 1, with a manual extension over range of 100 to 1. The automatic change of recorder sensitivity prevents multiple traces on the mass spectrum record. Because of the instrument's excellent resolution, isotopes of mercury and other high-mass elements can be separated, even under adverse conditions.

Scanning range is very wide. Range of masses from 1 to 300 is obtained by the automatic magnetic scanning; masses to 400 can be measured by adjusting the accelerating voltage.

Analytical results become apparent coincident with the scanning of the mass spectrum, and the presence of isotopes is revealed before analysis is complete. The operator can reanalyze any portion of the spectrum immediately if he so desires. He can make notes directly on the chart for future reference.

The apparatus has adjustable ionization potentials to permit separation of certain isomers. Samples can be in the gaseous, liquid or, in some cases, the solid state (the last two are vaporized for analysis).

With the recording type of analysis, the average time required to record the mass spectrum from mass 1 to 100 is about 10 min. Specifically, the time required to scan depends upon the number of peaks, because the recorder slows down automatically as each peak is being recorded. Full-scale peaks require about 4 sec to be recorded.

A continuously indicating dial on the instrument panel is automatically rotated in synchronism with the sweep of the magnetic field so as to indicate each mass number. In conjunction with this, a mass marker identifies every fifth mass on the recorder chart by means of a second recorder pen.

The Brown ElectroniK high-speed strip-chart recorder reproduces peak heights whose relative intensities vary from 1 to 3,000. This range is possible due to an automatic range changing system.

In the field of nuclear chemistry, the instrument has many applications. For example, it can be used in analyzing hydrocarbons in which one or more hydrogen

atoms have been replaced by deuterium. The petroleum industry has applied the spectrometer to the work of setting up distillation columns for optimum operation, and analysis of process streams in thermal cracking units as an aid in evaluating potential outputs and efficiency.

In cat cracking, the apparatus aids in revising and adjusting the cracker to obtain top production with the desired ratio of paraffins, olefins and other hydrocarbons. It also facilitates the analysis of light hydrocarbon streams such as overheads and bottoms of depropanizers and debutanizers.

Control of product quality is an important application for the spectrometer in chemical, pharmaceutical and other industries.

In isotope research, the relative intensity of the isotope is immediately apparent, and traces of rare isotopes are shown right away. Safe, non-radioactive isotopes can be concentrated and used as tracers, using the spectrometer to interpret results.

The mass spectrometer is also a useful tool in studying molecular structures for the purpose of revealing the nature of the chemical and electrical bonds which hold complex molecules together. It is equally effective in determining the progress of slow reactions.

(Summarized from data provided by Brown Instruments Division, Minneapolis-Honeywell Regulator Co., Wayne & Roberts Aves., Philadelphia 44, Pa.)

## Neoprene Adds to Pulp "At Beater"; Increases Strength, Chemical Resistance of Papers

### Mill trials substantiate practicality of process

NEW type neoprene (developed especially for treating paper), and a mill-tested process for adding it to pulp "at the beater" stage to increase the strength and chemical resistance of the finished paper have been developed by the Du Pont Company at Deepwater Point, N. J.

Method consists of sensitizing Neoprene Latex Type 735 with a dispersing agent and a small amount of aluminum sulfate. The sensitized latex, together with antioxidant and zinc oxide, is added to the pulp during stock preparation, and is co-precipitated with the fiber by means of alum. The papermaking operation is then completed in the normal manner.

The new neoprene is an alkaline, aqueous dispersion of polymerized 2-chlorobutadiene 1,3. It has a pH of about 12, and a total solids content of approximately 35%. Latex additions of 1 to 5% at the beater substantially increase the desirable properties of paper mentioned above. Additions of 5% enhance these properties more than 1% additions. Experience has shown that amounts of neoprene in the range of 15 to 50 parts per 100 parts of pulp can be added by this technique — products of the imitation leather types have resulted.

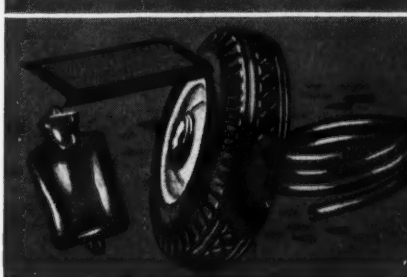
Mill trials using neoprene latex as a pulp additive have been made. Results have been in good agreement with

(Continued on page 32)

JULY, 1950

## SHARPLES

DOUBLE CHECKED



SEMI-COMMERCIAL QUANTITIES OF  
PARA-SEC-AMYLPHENOL AND  
POLY-SEC-AMYLPHENOL ARE ALSO  
AVAILABLE

# DI-tert-AMYLPHENOL DI-sec-AMYLPHENOL

Both of the Sharples Diamylphenols are of interest as intermediates for organic synthesis.

The tertiary isomer can be used for resin manufacture, for lubricating oil additives and for rubber chemicals. It also finds application as a plasticizer and as an anti-skinning agent for surface coatings.

### PROPERTIES:

	Di-tert-amyphenol	Di-sec-amyphenol
Color	lt. yellow to brown	clear amber
Physical State at Room Temperature	liquid	liquid
Specific Gravity	0.93-0.94 @ 30°C.	0.91-0.93 @ 20°/20°C.
Distillation		
Initial Boiling Point	275°C. min.	— — —
Not less than 95% below	300°C.	— — —
95% between	— — —	280-305°C.
Final Boiling Point	310°C. max.	— — —

Write to Dept. D for specifications, prices and further information.

## Sharples Chemicals Inc.

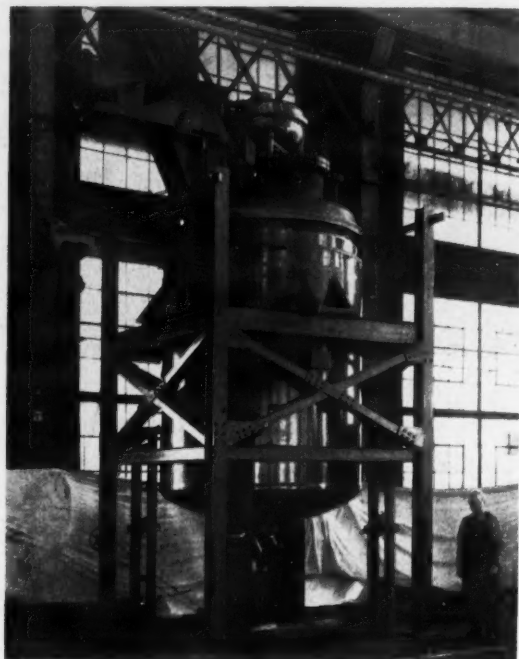
350 Fifth Avenue, New York 1, N. Y.

80 East Jackson Boulevard, Chicago 4, Ill.

Executive Offices: 123 S. Broad St., Phila. 9, Pa.

When inquiring check CP 8480 on handy form, pgs. 2-3

**BUFLOVAK-DOPP KETTLES**  
with Double Motion Agitators  
SAVE Time and Production Costs  
in Processing Heavy Viscous Materials



2750-Gallon BUFLOVAK-DOPP Grease Kettle.

Investigate these BUFLOVAK Features for your processing problem:

- \* Thorough mixing, freedom from lumps and stratification . . . quickly and efficiently.
- \* No local overheating.
- \* Increase of heat transfer rates for rapid heating and cooling cycles.
- \* Easy and rapid discharge of material.
- \* Safe, quiet operation.
- \* Sturdy construction . . . dependable operation . . . low maintenance cost.
- \* Built in sizes from 1-gal. laboratory units to largest plant size kettles.
- \* Facilities available for pre-testing operation.

Write for complete information.

**BUFLOVAK EQUIPMENT DIVISION**  
of Blaw-Knox Company  
1645 Fillmore Ave. Buffalo 11, N.Y.



Fig. 1. Circuit of electrolytic diaphragm cells in caustic-chlorine plant

## Enlarged Electrolytic Chlorine Cell Provides More Product per Unit of Floor Space

**Hooker Type S-3 cell, similar to the older Type S unit, intended for plants making more than 25-50 tons Cl daily**

THE Hooker Type S diaphragm type electrolytic cell has been used in caustic-chlorine plants since 1934, and is well-known to the industry. As the chlorine industry grew and larger plants were built, some of them making up to 300 tons of chlorine per day, the need for a cell of larger capacity became apparent. Such a cell would reduce floor plant requirements, equipment cost and operating labor costs in the larger plants.

As a result of the need, the Hooker Type S-3 cell was developed. This enlarged cell, rated at 20,000 amperes capacity, offers appreciable economy as compared with the Type S cell in plants having a daily capacity of more than 25-50 tons, the exact minimum size of plant for installation of Type S-3 cells depending considerably upon the type of power conversion equipment employed. Operating principle of the two cells is identical. The table compares operating performance of the two types.

Most installations of Type S cells are operated at 7,000 to 8,000 amperes; however, operation outside of these limits is sometimes desirable. The cells are put into circuits of about 20 to 200 cells, depending upon plant size and the characteristics of available DC power supply.

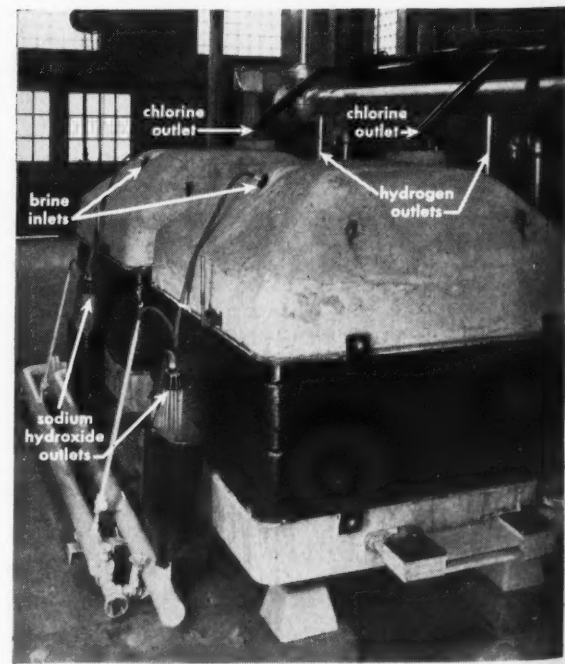


Fig. 2. Hooker Type S-3 cells for large plants

CHEMICAL PROCESSING

Idea Certain characteristics, such as cell voltage and cell temperature, vary with the age of the cell. The values presented in the table are representative of average conditions. One of the important design features is that the brine feed may be held constant throughout the life of the cell, and the anolyte brine level within the cell adjusts itself according to the porosity of the diaphragm to maintain a constant rate of flow through diaphragm. Thus, the NaOH concentration does not change appreciably with the age of the cell, but is under control of the operator.

Concentration of effluent may be maintained at any

#### TYPICAL OPERATING PERFORMANCE

	Type S Cell		Type S-3	
Current, amp. ....	5,000	7,500	10,000	20,000
Volts .....	3.20	3.48	3.72	3.65
Temperature of effluent, °C <sup>1</sup> ....	80	89	94	95
NaOH in effluent, gm/l <sup>2</sup> ....	135	138	138	138
NaClO <sub>2</sub> per 1,000 parts NaOH ....	2.5	1.0	1.0	1.0
Current efficiency, percent .....	94	95.5	96	96
Voltage efficiency, percent <sup>3</sup> .....	72	66	62	63
Power Efficiency, percent .....	68	63.5	59.5	60.5
Power consumption, DC KWH .....	2310	2480	2640	2600
per ton Chlorine .....				
Anode life, days .....	500	460	390	390
Diaphragm life, average days ..	167	153	130	130
NaOH per cell per day lb .....	373	567	760	1520
NaOH per day per sq ft of floor space lb <sup>4</sup> .....	5.2	7.8	10.4	17.0
Chlorine per cell per day, lb .....	330	500	667	1340
Chlorine per day per sq ft of floor space, lb. <sup>4</sup> .....	4.6	6.9	9.2	15.1

<sup>1</sup>When supplied with heated brine. (65°-70°C)

<sup>2</sup>Can be controlled to maintain any concentration within range of approximately 120-160 gm/l with corresponding change in other performance data.

<sup>3</sup>Assuming a theoretical decomposition voltage of 2.3 volts.

<sup>4</sup>Including all aisles but not including cell renewal space.

point from 120 to 160 gm/l NaOH to meet requirements of local conditions. Current efficiency and graphite life tend to increase as NaOH concentration is reduced; however, steam requirements for evaporation also tend to increase. Hence, the economic operating range depends upon local power and steam costs. This range is about 130 to 140 gm/l for most parts of the U.S.

Data in table correspond to the use of a brine containing approximately 318 gm/l NaCl and heated to about 65° to 70°C. Lower brine concentration tends to decrease current efficiency and graphite life.

(Summarized from data furnished by Hooker Electrochemical Company, Niagara Falls, N. Y.)

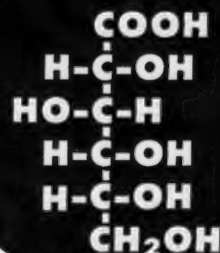
#### Treats control of processes by pneumatic controllers

Analysis of pneumatic controller actions and their application to automatic control of industrial processes is presented so that such controllers may be better applied to processes involving varying degrees of control difficulties. Covers exact and excess corrections; proportional action; process difficulty; reset action; and derivative action. Study avoids reference to complex mathematical proofs, and can be understood without mathematical knowledge. Includes numerous illustrations — processes under control, and actual chart records.

Data Sheet A100.1-2 is issued by The Bristol Company, Dept. CP, Waterbury 20, Conn. When inquiring specify CP 8482 on handy form, pages 2 and 3.

# IF YOU... Need a Mild, Poly-hydroxy Mono-carboxylic Acid

## SPECIFY PFIZER GLUCONIC ACID



### PROPERTIES and USES

Molecular Weight — 196.16

Appearance — Yellowish liquid

Specific Gravity of Solution @ 25°C

— 1.24

Solubility in Organic Solvents — Low

A mild acid; low corrosion rate

on metal; non-toxic, easily

assimilated, forms soluble

salts; non-tendering to fabrics.

A sequestering agent and acid for—

Textile dyeing

Leather dyeing

Acidizing oil wells

Catalyst for Melamine resins

A metal cleaner with a low corrosion rate for—

Electro-pickling

Pickling baths

Acidic type cleaners

Easily assimilated for—

Food and Pharmaceutical Use

Pfizer Gluconic Acid Technical is available as a light yellow 50% aqueous solution in 5, 25 and 50 lb. bottles, 100-lb. carboys and 575 lb. drums. Its companion product, Pfizer Glucono-Delta-Lactone, is available as a white crystalline powder in 1 and 5 lb. canisters, 25, 50, 100 and 250 lb. drums. Write today for further information and samples of these non-toxic, non-corrosive mono-carboxylic compounds to Technical Service Department, Chas. Pfizer & Co., Inc., 630 Flushing Avenue, Brooklyn 6, N. Y.; 425 North Michigan Avenue, Chicago 11, Ill.; 605 Third Street, San Francisco 7, Calif.



# PFIZER

*Manufacturing Chemists for Over 100 Years*

When inquiring check CP 8483 on handy form, pgs. 2-3

## Here's how to get longer service from DRUM LININGS

As one company discovered, the *right* lining for the product saves shipping headaches—and costs! They were shipping vegetable shortening in lined drums and relining after each trip. Then they switched to an organic drum lining formulated by United Chromium *especially* to fit the needs of their product. Result? Up to *six* trips now from each drum before relining!

Take advantage of the better service and increased product protection that a "custom tailored" drum lining affords. As a supplier of special coatings for product application as well as corrosion resisting industrial maintenance, we'd welcome an opportunity to work out the right drum lining for you. Write us, giving an outline of your problem.

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COATINGS FOR METALS

UNITED CHROMIUM, INCORPORATED  
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Waterbury • Chicago • Detroit • Los Angeles

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## GAYCO CENTRIFUGAL SEPARATORS

GAYCO Separators, equipped with the adjustable centrifugal sizing fan — an exclusive GAYCO feature — make closer separations. Closer separations bring about higher production through efficient removal of the fines made by the mill. Closer separations bring about higher quality products by eliminating all undesirable oversize.

"TIMKEN BEARING EQUIPPED"  
GAYCO brings you all these:



Range 60  
to 400  
mesh  
  
Greater  
capacity  
  
25 to 30%  
greater  
production

Cleaner  
Tailings  
  
Uniform  
Products  
  
Slow speed for  
slow wear  
  
Quick and easy  
adjustments

If you have an exceptionally hard separating problem,  
TRY THE GAYCO.

## Universal Road Machinery Co.

Robert M. Gay-Division

Factory and Laboratory, Kingston, N. Y.  
117 LIBERTY STREET NEW YORK 6, N. Y.

Canadian Representative: F. H. Hopkins & Co., Ltd.,  
8500 Decarie Blvd., Montreal, Que.

When inquiring check CP 8485 on handy form, pgs. 2-3

Page 32

## IDEAS

### Neoprene in Paper (Cont. from pg. 29)

those predicted from laboratory work. Chart shows the distribution of wet strength values obtained in 25 average mill runs (2% neoprene added) in various localities. It was observed that where exceptionally good results were obtained, the pulps used were well washed, the water used in stock preparation was low in electrolytes (which might cause premature latex

TABLE I

Effect of Neoprene on Wet Tensile Strength			Basis Tensile Strength	
Parts Neoprene/100	Furnish	Parts Pulp	Weight	wet/dry x 100
1	Bleached kraft	30	32.1	
2	Bleached kraft	50	38.4	
5	Bleached kraft	70	47.4	
5	Bleached rope	70	56.3	
10	Bleached rope	100	92.0	
2	Bleached sulfite	14	29.8	
2	Rag	100	40.0	
10	Rag	100	64.0	

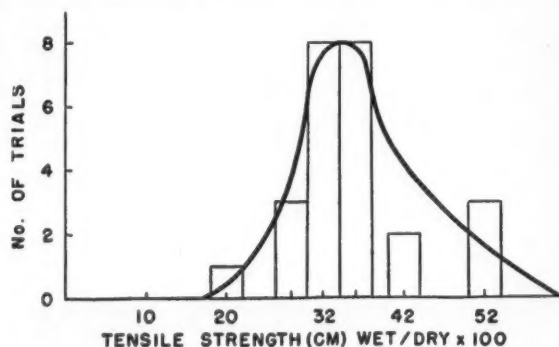
TABLE II

Resistance of Neoprene Treated Papers* to Solutions				
Solution	Tensile Strength		Tear Resistance	
	wet/dry x 100		wet/dry x 100	
% Neoprene	2	5	2	5

10% Diethanolamine	18	29	145	165
5% Hydrochloric Acid	17	26	72	90
5% Sulfuric acid	17	27	172	190
5% Nitric acid	14	25	110	135
5% Phosphoric acid	27	40	120	160
3% Citric acid	23	29	125	150
5% Sodium hydroxide	18	30	100	125
5% Sorbitol	29	48	165	200
5% Synthetic detergent (a sodium aliphatic sulfonate)	16	24	100	125
5% Ivory Soap	16	23	90	120
25% Glycerine	42	49	150	210
Water	36	45	175	240

(\*Unbleached 550 Canadian Freeness kraft sheets of 60-lb basis weight immersed for 24 hours.)

### DISTRIBUTION OF WET TENSILE STRENGTH RETENTION FOR 25 FACTORY TRIALS



## FLUID DRIVE *Lift King* TRUCK smooths out handling kinks and costs

130-inch lift.....66-inch free lift



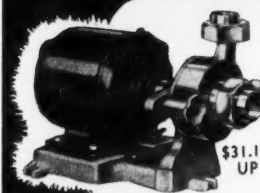
Smooth Fluid Drive makes ramp climbing a cinch. Automatic controls. Drives like your car! Powerful 65 H.P. motor. Duplex hydraulic hoisting unit for smooth lifting, lowering. Hypoid drive power axle takes bumps in stride. Has safety-first automotive-action hydraulic brakes, ground gripper tires. Capacities to 10,000 lbs. Write for literature.

RG-2

**YALE** THE YALE & TOWNE MANUFACTURING CO.  
Roosevelt Boulevard • Philadelphia 15, Pa.  
HAND LIFT AND POWER TRUCKS • HAND AND ELECTRIC HOISTS • INDUSTRIAL DIAL SCALES

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## Stainless Steel and Nickel Alloy THOMSEN Equipment for the Processing Industries



### Sanitary & Brine Pumps

Direct drive and heavy duty coupling types. Smooth, steady flow. Higher production, lower cost. Sanitary rotary seal. Precision workmanship means less wear and longer service. Easier to keep clean. Write for descriptive data giving capacities, prices, etc.

### Valves and Fittings

Complete line nickel alloy and stainless steel. Finest of workmanship in every detail. No pit-holes or rough surfaces. Highly polished to mirror smoothness. Easily cleaned.

### Line Filters and Tubing

Filter barrels of white metal or stainless steel. 1" 1/2" and 2" 1,000 to 6,000 lbs per hour capacity. Stainless steel and nickel alloy. Tubing, 10' lengths, 1" to 4" diam. All finishes. Ask your jobber or write for descriptive literature.

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KENOSHA, WISCONSIN

BE WISE BUY WISE

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CHEMICAL PROCESSING

floculation), and machine speeds were relatively slow. Table I shows results of machine runs utilizing different furnishes. Lack of uniformity in basis weight of the resulting paper, together with the fact that no single concentration of latex was present, prevents direct comparison of the efficiency of the treatment in various furnishes. Nevertheless, use of Neoprene Latex Type 735 has resulted in production of paper having high wet tensile strength.

Although immersion for 24 hours in various chemicals (Table II) has produced a greater loss in tensile strength than a corresponding exposure to water, the effect of these chemicals on neoprene-treated papers is shown to be far less than for untreated papers. Such results indicate possibilities for the utilization of neoprene to produce paper requiring chemical resistance.

Marked increase in elongation, and improved bursting strength, tear resistance, folding endurance, and internal bond strength have resulted from incorporation of neoprene into many papers.

(Summarized from data obtained through Technical Association of the Pulp and Paper Industry, originally prepared by E. I. Du Pont de Nemours and Company (Inc.), Wilmington 98, Del.)

#### **Deliver liquid urea resin in tank cars and trucks; no drums needed . . .**

material pumped right into storage tanks upon arrival at plant for use by spreaders

By shipping resin glues to industrial users by special tank cars and tank trucks, the chemical division of the Borden Company eliminates a vast amount of labor for its own crews and those of their customers. Deliveries of quantities as small as 2500 lbs are now being made by this efficient method.

This organization first began making bulk shipments of phenolic resin glues in 1946 for west coast customers. Today 90% of west coast shipments are made by tank car and truck. Long distance bulk shipments of urea resin were made possible recently with the development of Casco-Resin No. 30 which has a low solids content and long storage life.

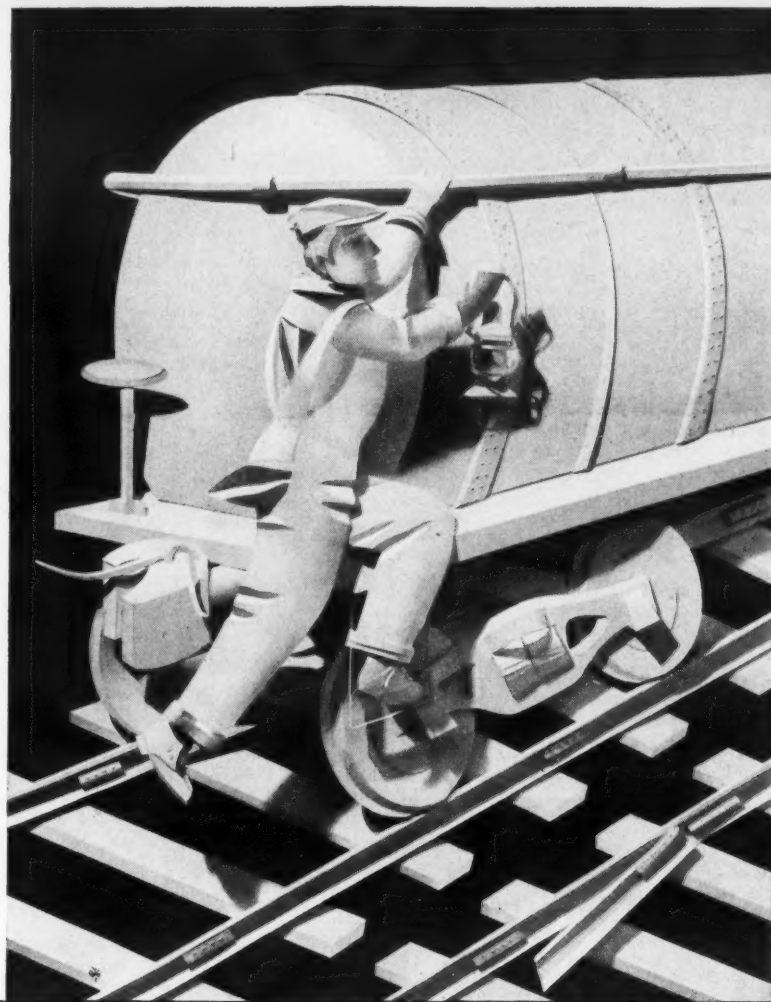
This shipping method eliminates necessity of unloading drums, storing, rotating and moving them to the glue room and setting them up for measuring. Problem of storage and disposal of empty drums is eliminated.

Once the glue reaches plant where it is to be used, it is pumped directly from tank car or truck to plant storage tanks. It then can be moved to the glue spreader by the simple turning of a few valves and push-button operation of pumps. (Borden Company, 350 Madison Ave., New York, N. Y.)

#### **Documents case histories of low-temperature welding**

Fifteen case histories are featured in 8-page brochure discussing low-temperature welding techniques. Brochure covers scaling, distortion, softening of heat-treated metals, burn through, weld failure from impact, joining of dissimilar metals, and other problems. Copies of "Eutectic Welder", Vol. 6, No. 7, may be obtained from the Eutectic Welding Alloys Corporation, Dept. CP, 40 Worth St., New York 13, N. Y. When inquiring specify CP 8488 on handy form, pages 2 and 3.

JULY, 1950



paper sculpture by goretka-egon

## **"let 'er roll"**

Whether they "roll" in tank cars,

or any other type of container, Niagara chemicals  
are unsurpassed for quality.



**NIAGARA ALKALI COMPANY**

60 East 42nd Street, New York 17, New York

EBG\* Liquid Chlorine  
NIALK\* Caustic Potash  
NIALK Carbonate of Potash  
NIALK Paradichlorobenzene  
NIALK Caustic Soda  
NIALK TRICHLORethylene  
NIAGATHAL\*  
(Tetrachloro Phthalic Anhydride)  
\*Trade-mark

When inquiring check CP 8489 on handy form, pgs. 2-3



Viking is the original gear-within-a-gear rotary pump. It meets the needs of fast self priming, smooth, even delivery and the handling of either light or heavy liquids.

Pressures range to 100 psi in standard construction . . . 200 psi in heavy-duty construction . . . 500 psi in hydraulic oil applications.

A record of 39 years building this most copied of all rotary pump designs is behind the original, genuine Viking.

The record of building this one design exclusively is revealed in the performance of all Viking gear-within-a-gear pumps . . . the design that made rotary pumps famous.

Learn today why the Viking Rotary Pump will do your liquid handling job so successfully. Ask for free bulletin 50SCC.



**Viking PUMP COMPANY**  
Cedar Falls, Iowa

When inquiring check CP 8490 on handy form, pgs. 2-3

**BETTER BUILT means  
BETTER SERVICE with  
WALDRON advanced  
Gear Type COUPLINGS**

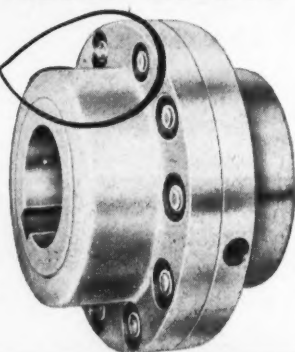
For example, Waldron Couplings are made with

**One-Piece Cover Sleeve**

*No Welded  
Sections here*

The Waldron cover sleeve is one solid forged steel piece with no welding to distort the accurate gear inside. This feature not only prevents possible trouble but also permits operation at highest speeds.

For details on other construction and operating advantages — ratings, service factors, etc.—ask for Catalog 57.



**JOHN WALDRON CORP.**  
Main Office and Works  
**New Brunswick, New Jersey**  
**COUPLINGS**

Sales Representatives in Principal Cities.

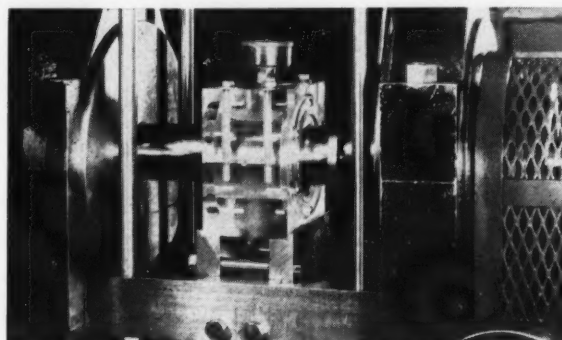
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## IDEAS

**Transparent Lucite bearing displays behavior of lubricant . . .**

test machine measures operating temperatures and friction drag

Transparent plastic bearing for lubrication studies permits engineers to see and photograph the behavior of oils and greases in bearings under different loads and speeds. Test machine can be adapted to study ball, journal, and roller bearings. Bright red dye is mixed with the lubricant so that lines of flow can be followed. Sensitive scales on



Engineers conduct lubrication studies through transparent bearing machine measure friction drag — the tendency of the bearing to rotate with the shaft. Operating temperatures are measured electrically by means of thermocouples and a potentiometer. (Special test machine and Lucite bearing were designed and built at The Texas Company research laboratories at Beacon, N. Y. The work is being done at the Engineering Experiment Station of Pennsylvania State College, in collaboration with the staff.)

**Convenient spray tube and re-use feature offered in plastic bottle . . .**

use as lab utensil and glassware detergent typical of numerous applications

Easy spray application of contents and re-use features prompted Emil Greiner Co. to use bottles of Plaxpak polyethylene for its Aquet lab detergent.

Once bottle is empty, it may be used again for reagents because of its chemical resistance. Label space is provided on the bottle for indicating its new contents.

Bottle capacity is one pint. Dispensing is accomplished by means of a polyethylene spray tube which extends through a polyethylene closure and narrows to a pointed spout at the dispensing end. This innovation permits user to control size of stream dispensed — the closer to the end it is snipped, the smaller the stream. (Bottles are product of Plax Corp., Hartford, Conn.)

**Zinc alloy 8 times stronger than types now in use . . .**

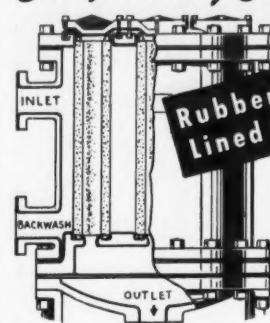
suggested uses are lamp sockets and bases, containers, mild springs, various hardware

Development of an alloy of zinc, having approximately the same strength and electrical properties as brass, is announced by G-E Research Laboratory. The alloy is reported to have about eight times the useful strength of any zinc alloy now in use.

Composed principally of zinc, the alloy takes on springy and resilient qualities through the addition of small per-

**Get Crystal Clear FILTERING of Corrosive Acids**

*Cut Filtering Costs with*



**ADAMS PORO-STONE FILTERS**

1 Easy cleaning, without dismantling, by simple backwashing.

2 Safe — eliminates toxic fumes and workers' contact with dangerous acids.

3 Filter shells — rubber or lead lined. Filter tubes inert to acids or alkalis.

Write for Bulletin 9348

**R. P. ADAMS CO., Inc.** 243 E. PARK DRIVE  
BUFFALO 17, N. Y.

When inquiring check CP 8492 on handy form, pgs. 2-3



**SPRACO NOZZLES**

Write for NOZZLE CATALOG to  
**SPRAY ENGINEERING CO.**  
125 CENTRAL STREET • SOMERVILLE 45, MASS.

When inquiring check CP 8493 on handy form, pgs. 2-3

CHEMICAL PROCESSING

centages of copper and beryllium. This contrasts ordinary zinc — a foot-long strip (1/16" thick) which will sag under its own weight when held horizontally and supported at one end.

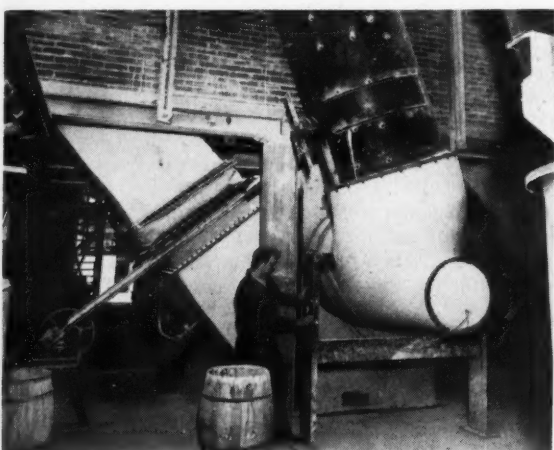
Designated as "zncube", the alloy is suggested as a substitute for brass in lamp and fuse sockets and bases, panels, containers, mild springs, and various forms of hardware. Reports are that the alloy is considerably cheaper than brass, and is easily machined, soldered, and resistance-welded. (General Electric Company, Schenectady 5, N. Y.)

#### Offers technique for insulation of large cylindrical ducts . . .

advantageous where ducts must not be punctured, where positioning of insulation is difficult

Cylindrical sheet metal ducting is often difficult to insulate because pre-formed pipe insulation is usually too small; because ducting generally prohibits the use of bolts, screws, or wires which puncture the duct surface; and because curvature of duct surfaces is too great to allow temporary positioning of insulation prior to strapping.

The Industrial Mineral Wool Institute tells how one company solved the problem of insulating a high-temperature duct which led to an exhaust fan. This particular job was



Large cylindrical duct being insulated with mineral wool

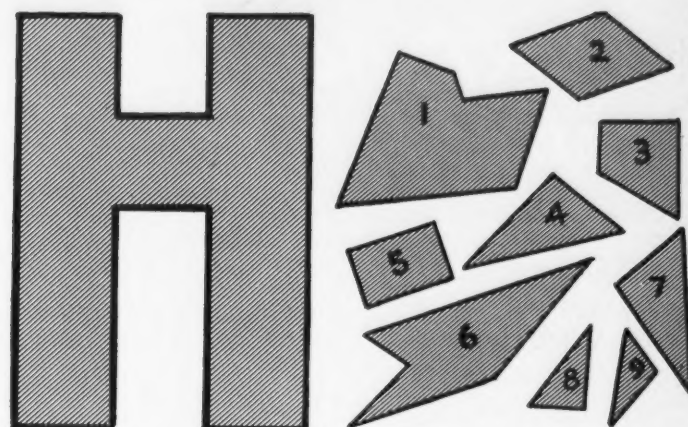
to prevent excessive heat from radiating into the plant, making work areas uncomfortable. A similar installation might be applied to ducting for purposes of saving fuel, or for increasing operating efficiency of equipment. Technique is set forth as follows:

1) Dirt, grease, and other extraneous material was cleaned from duct surfaces with a wire brush. 2) eight-inch lengths of galvanized wire were spot welded to surfaces of duct as shown in illustration. 3) one-inch thick mineral wool blankets, supplied sandwiched between expanded metal lath and light-gauge galvanized wire mesh, were impaled on the projected wires. Expanded lath was faced out, and the protruding galvanized wires were bent over to hold the insulation in place.

4) Sections of blanketing were laced together at the edges by galvanized wires intertwined in the lath. 5) Finally, the blanket was covered with a one-half-inch layer of mineral wool insulating cement trowelled over the surface of the expanded metal lath. (Industrial Mineral Wool Institute, 441 Lexington Ave., New York, N. Y.)

## SOLVING A DRYING PROBLEM

Here you have the letter "H", before and after being broken up into fragments. Put the pieces together again, without cutting them out, to form the letter. LOOK FOR THE SOLUTION WHICH WILL APPEAR NEXT MONTH. (PAR: 4 min.)



## IS SOMETIMES LIKE PUTTING THE PIECES OF THIS PUZZLE TOGETHER

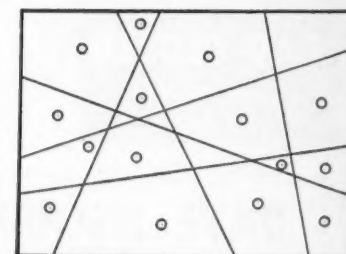
Solving your drying problem is something like doing a puzzle on a major scale and for high stakes. In both cases you must have a clear conception of the problem and the end result to be achieved. Then you must study the component parts and analyze the avenues of approach open to achieve the desired result.

It sounds simple enough and yet—the one thing to keep in mind is that in tackling the solution to a drying problem, time and effort represent money. If you can find any way to shorten the time and effort that you must put into the solution—you are financially that much better off.

One of the surest ways to shorten the time and effort that go into the solution of a drying problem is to know that drying is to be a part of your process. This early consideration is vital, for the type of drying equipment you are considering may well have an important bearing on preliminary or subsequent

processing. In continuous processing, drying is one link and must be considered as part of the whole line. Proctor engineers' long experience enables them to help you cut through to the heart of your problem with a minimum of time and effort.

The facilities of Proctor research laboratories are available to you without cost or obligation. Those who have availed themselves of these facilities have found that it has always worked to their advantage. If you are considering a process where drying is a link—take Proctor engineers into the picture with you today. Call or write.



The problem was—draw six lines across the rectangle in such a way as to separate each small circle from every other circle.

**PROCTOR & SCHWARTZ INC • 633 TABOR ROAD • PHILADELPHIA 20 • PA •**

When inquiring check CP 8494 on handy form, pgs. 2-3

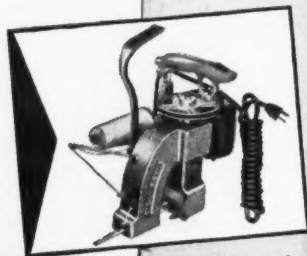
# NEW LOW PRICED PORTABLE (ELECTRIC) BAG CLOSER.

## IDEAL FOR SMALL PLANTS—A HANDY EXTRA MACHINE FOR LARGE PLANTS

Lightweight, practical, handy! Easy to operate. Efficiency and reliability proved by almost 3,000 users. Fully Guaranteed.

- Capacity: 200 bags per hour with ease.
- Completely portable —weighs only 10½ lbs.
- Requires no plant space or installation —merely plug into any light outlet.
- Handles all types of textile bags and a wide variety of paper bags.

Save your  
plant  
money in  
time, labor  
and  
equipment



Completely Portable  
**FISCHBEIN**  
**BAG CLOSER**  
Carry Machine  
to Bags!

Write today for  
further  
information.

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**DAVE FISCHBEIN CO.**

INDUSTRIAL SEWING MACHINERY

DEPT. 9B 38 GLENWOOD AVENUE  
MINNEAPOLIS 3, MINNESOTA

When inquiring check CP 8495 on handy form, pgs. 2-3

Page 36

## Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications,  
. . . as selected by Technical Editor, Harry McCormack

### Infrared analysis of phenol cresols, xylanol and ethylphenols

An improved analytical method for phenol cresols, xylanol and ethylphenols is described in a 2-page article. Method employs a conventional spectrometer to make qualitative and quantitative determinations.

Sources, purifications and purities of the calibrating compounds are stated. Data are presented showing the results obtained on synthetic blends as well as on actual samples. Charts of spectra are included. Two figures, 3 tables. ("Analytical Chemistry", March, 1950, page 418)

### Toxicity Index

An improved method of comparing relative toxicity of insecticides is presented in an 8-page article, with 11 tables and bibliography.

A toxicity index is defined, with information revealing how it is determined, and data indicating its reproducibility. Several examples illustrate applications of the suggested calculations. ("Journal of Economic Entomology", Feb. 1950, page 45)

### Graphic instrument panels for process instrumentation

Problems arising with regard to instrument panels and control boards as a result of increased process instrumentation are discussed in an 8-page article.

Author suggests that use of the graphic panel may solve some of these difficulties. Opinions are stated regarding necessary procedure to assure satisfactory operation and maintenance when process instrumentation is thus conducted. Includes 10 figures. ("Petroleum Refiner", March 1950, page 107)

### How a petroleum refinery slashed maintenance costs

Article cites some novel procedures for stocking and delivering maintenance supplies in a large petroleum refinery. Various units used in the system are described, illustrated by 7 photos. Advantages arising from these novel practices are enumerated and discussed. Five pages. ("Petroleum Processing", Feb., 1950, page 141)

### Pressure, temperature and time: their effects on injection molding

Attention is focused on known characteristics of polystyrene and other thermoplastics, as an aid to better understanding of the injection molding process. A method of measuring plastic pressure in the mold is discussed. Evidence is

presented to show how such measurements of polystyrene permit a detailed analysis of the process.

Graphs show thermal expansion of polystyrene and characteristics of its thermal expansion. Other graphs show change in volume with change in pressure. A mold, in which pressure can be measured through the cycle, is described. Article explains how results may be used in setting a molding cycle. Eight pages, 20 figures. ("Modern Plastics", April 1950, page 143)

### Decolorize tallow by liquid-liquid extraction with propane

Five-page article describes an adaptation of the propane de-asphalting process, for petroleum, to decolorizing crude tallow. Plant and process are described with a flow diagram. Effects of certain changes in operating conditions are discussed. ("Journal of the American Oil Chemists' Society", March 1950, page 75)

### Sonic vibrator removes stack dusts, mists

Use of the sonic vibrator to agglomerate, precipitate and remove dusts and mists from stack gases is described and discussed in a 3-page article. Equipment for small and large installations is considered. Suitable operating conditions are stated.

Sulfuric acid fog is cited as a specific example. Other applications are indicated. Includes 5 figures. ("Chemical Engineering", May 1950, page 158)

### Evaporation of liquids into turbulent gas streams

Experimental data on the evaporation of liquids into turbulent gas streams are presented in this 8-page article. Experimental procedure is stated, and equipment is described. Discusses evaporation of various liquids into a variety of gas streams.

Evaporative surfaces included cylinders, spheres and discs. Equations are derived to express mass transfer rates under three conditions. Three tables, 9 figures. ("Chemical Engineering Progress", March 1950, page 131. . . Also see April 1950 issue, page 172, for "Effect of Air Turbulence on Rate of Evaporation of Water".)

### Variable-area flow meters permit savings in shipping caustic soda

Freight savings due to shipping caustic soda at higher concentrations, diluting it to desired concentration as unloaded from the tank car are described in a 5-page article. Method employs a variable-area flow meter, which is de-

CHEMICAL PROCESSING

scribed. Same system may be used when transferring concentrated solution from plant storage to point-of-use in plant. Diagrams show equipment arrangements for various purposes. Includes 3 tables, 6 figures. ("Petroleum Processing", March 1950, page 248)

#### Scope, purpose and procedure of process research engineering

A 3-page article discusses the correlation of engineering and pilot plant data and comments on the limitations of commercial units in developing engineering data.

Importance of establishing a proper goal for contemplated research is stressed. An example is cited. Illustrated with 1 photo. ("Petroleum Processing", May 1950, page 502)

#### Need for standardizing symbols of process instrumentation

A 5-page article discusses the need of process instrumentation for a system of symbols identifying each instrument, its positioning and mounting. The report of a committee of the Instrument Society of America is reviewed. Eight figures. ("Petroleum Refiner", March 1950, page 97)

#### High-temperature measurements in a gas stream

Difficulties inherent in attempting to measure the temperature of a gas stream flowing through an enclosed space, the walls of which are either above or below the temperature of the gas stream, are set forth in an 8-page article.

Thermocouples especially designed for this purpose are described. Also discusses structural factors which must be considered in order that thermocouple reading will be that of the gas stream. Illustrated with 11 figures. ("Petroleum Refiner", March 1950, page 115)

#### Spectrophotometric estimation of certain rare earths

A method is described in which the absorption spectra are used analytically. Solutions of 11 tripositive rare earths were used in the investigation. Technique is stated.

Graphs of the absorption spectra are included. Effects of other ions are evaluated. Table of representative analyses is presented. Seven page article includes 6 tables, 9 figures. ("Analytical Chemistry", March, 1950, page 433)

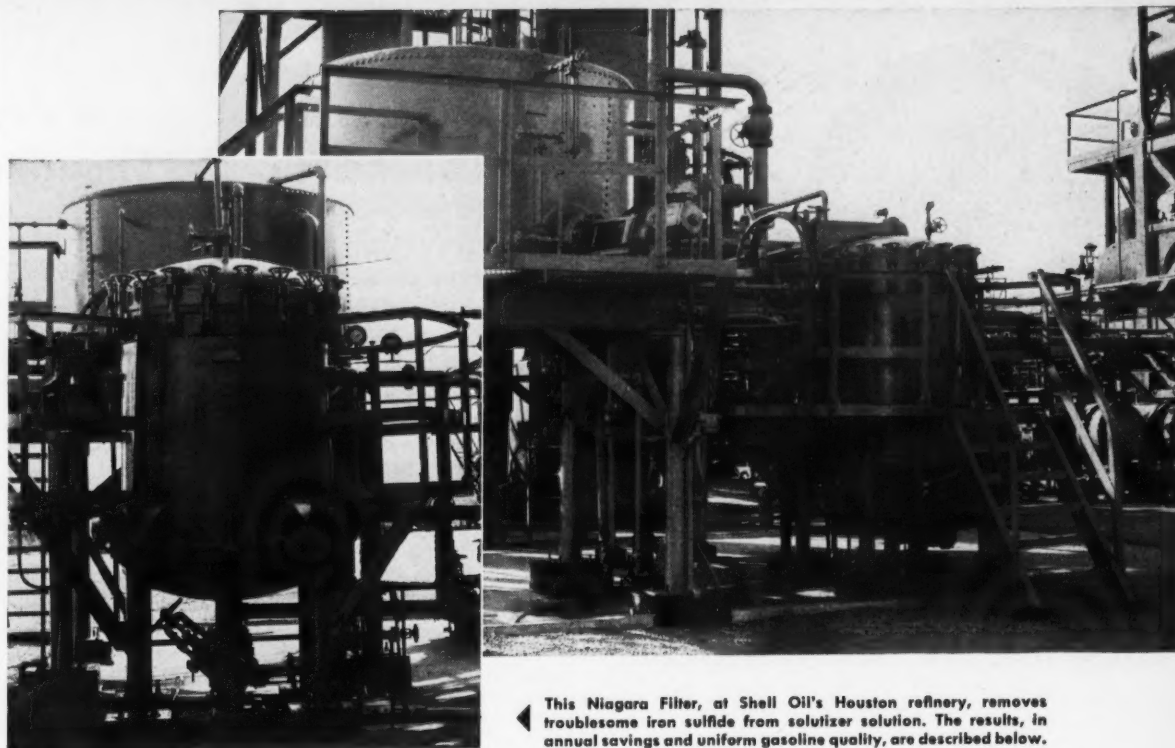
#### Rubber-base paints

A discussion of the rubber base paints, chiefly of latex dispersion types, is presented in 3½ page article. Properties and desirable qualities of latex, at various concentrations, are discussed.

Estimation of rubber in paint is commented on, also methods used to maintain uniformity of products. Methods of compounding are discussed. Two tables. ("Paint & Varnish Production", March 1950, page 8)

#### Effect of particle-size on rate of solvent extraction

Materials used in this experimental study are described, and particle sizes are specified. Soybeans, cotton seed, flax seed and peanuts are considered. Article consists of 3 pages, 3 tables, 3 figures. ("Journal of the American Oil Chemists' Society", March 1950, page 93)



This Niagara Filter, at Shell Oil's Houston refinery, removes troublesome iron sulfide from solutizer solution. The results, in annual savings and uniform gasoline quality, are described below.

## NIAGARA FILTER keeps Solutizer Solution "on-stream"

Shell Oil Company uses a Niagara Filter in its solutizer mercaptan extraction process and thereby effects "a significant annual saving."

Caustic solutizer solution is introduced into the extraction system, where it comes into contact counter-currently with the mercaptan-containing hydrocarbon fraction. The treated fraction and fat solutizer solution are withdrawn from opposite ends of the system.

A Niagara Filter was installed to remove the small amount of iron sulfide particles (averaging 20 microns) which gradually accumulate in fat solutizer solution. These insoluble materials in the system act as nuclei for troublesome emulsions and impair the effectiveness of the plant. The iron sulfide is contained in gasoline streams entering the solutizer plant.

The Niagara Filter has 16 stainless steel leaves with a total filter area of 322 sq. ft. It is delivering

solutizer solution free from iron sulfides, at a flow rate of 2700 GPH—and is doing this continually for a period of 64 hours before it is necessary to clean filter.

Continuous filtration helps to keep operation of the solutizer plant at high efficiency. Gasoline production remains uniformly high in octane number and tetraethyl lead susceptibility.

Niagara all-metal filters always save through elimination of filter cloths, simplicity of operation, increased filtration rates and long life of the stainless steel solderless filter leaves. Niagara filtration engineers are experienced in all types of filtration processes. They may be able to help you with your problems, and will be glad to test samples and tell you about pilot filter rental and other services. A letter from you outlining the problem will bring a prompt reply without obligation. Use the coupon below to order Bulletin G-447 for your files.



NIAGARA FILTER CORP., 3083 Main St., Buffalo 14, N. Y.  
Please send me details of Niagara Pilot Plant Filter rental ☐;  
Bulletin G-447 ☐.

NAME \_\_\_\_\_  
TITLE \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

See a Niagara "Auto-Sluice" Filter in operation at the National Chemical Exposition in Chicago, September 5-9  
When inquiring check CP 8496 on handy form, pgs. 2-3



## Recalibrate

### ON THE JOB WITH THE NEW ROCHESTER DIAL THERMOMETERS!

Accidents are bound to happen . . . like dropping or banging a thermometer sufficiently hard to make readings inaccurate. This could result in costly production errors. To eliminate this possibility, Rochester now offers a new Dial Thermometer with screw adjustment permitting recalibration on the job! All you do is put the instrument in boiling water or other known temperature and reset indicator.

Rochester Thermometers are designed specially for industrial applications. The new precision bi-metallic element is sensitive and quick to respond. Made with a single helix, calibration is not affected by extremes in temperature.

Rochester manufactures a complete line of Dial Thermometers in a variety of dial sizes, stem lengths and temperature ranges. Those shown below are typical. They are available with or without recalibration feature. The cost is surprisingly low. Mail the form below for specifications and prices on your requirements.

#### FOR HIGH PRESSURES

Rochester solid stainless steel stem design gives you unfailing accuracy plus durability. Available in a wide range of designs.

No. 1725=3" dial No. 1750=2" dial No. 1825=6" dial  
Stem lengths 2 1/4", 3 1/2", 6", 9", 12", 15", 18", 24"  
One piece sockets—to fit all stem lengths

#### TEMPERATURE RANGES

Fahrenheit	Centigrade	Dual Scale
-50 to 120°F. 50 to 350°F.	-70 to 160°C.	-90 to 130°F.
-70 to 150°F. 0 to 500°F.	-10 to 110°C.	-70 to 56°C.
0 to 200°F. 150 to 750°F.	0 to 150°C.	
0 to 300°F. *200 to 1000°F.	0 to 300°C.	
30 to 240°F.	100 to 400°C.	

\*Not recommended for continuous operation above 800°F.

# Rochester

GUARANTEED ACCURACY

ROCHESTER MANUFACTURING CO., INC.  
86 Rockwood St., Rochester 10, N. Y.

We require..... dial thermometers with temperature range of ..... to .....°; .....° dial; .....° stem.  
Please quote.

Name ..... Title .....  
Company .....  
Address .....  
City ..... State .....

When inquiring check CP 8497 on handy form, pgs. 2-3

## Measures Resistance of Plastic Surfaces To Scratching and Shearing

Same specimen and mounting used on instrument may be used on maker's wear-measuring device

**USES:** Measures resistance of plastics and plastic-coated materials to scratches, digs and scrapes. Also measures shear hardness of surface.

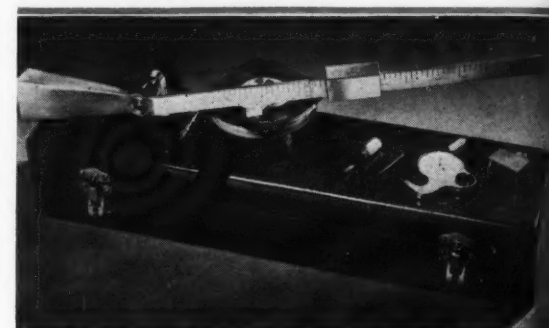
**Features:** The same specimen and specimen mounting table may be used on this instrument as on the Taber Abraser (for measuring resistance to wear). Because of this, one specimen may be used in running the complete tests of resistance to shear, scratching and abrasion.

**Description:** Model 139 Taber Shear Hardness and Diamond Scratch Tester consists of a finely balanced scale beam, calibrated in grams, to which is attached manufacturer's shear tool or diamond point scratch tool. Wide and legible graduations on beam each represent 10 grams, and a sliding weight provides adjustment of load from 0 to 500 grams. An extra calibrated weight may be attached to end of beam, increasing total capacity to 1000 grams.

Beam is pivoted on ball bearings, the internal bore of which is a slide fit over shaft projecting from mounting. Gauge block to which this shaft is fastened can be raised or lowered to correspond to specimen thickness. Thus, scale beam is maintained in horizontal position whether specimen is a thin plate or 1/4" in thickness.

Testing tool is inserted in scale beam, and beam is positioned on mounting shaft so that tool rests against

a clear area on specimen. Sliding weight is set, and a cut or scratch is made by turning specimen slowly and steadily. Results are then calculated in accordance with instructions furnished with instrument.

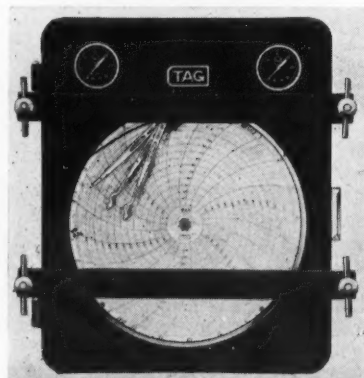


Shear hardness and scratch tester is stored in compact box when not in use

**Source:** Development of Taber Instrument Corporation, Dept. CP, 106 Goundry St., North Tonawanda, N. Y. . . . or for more information check CP 8498 on handy form, pages 2 and 3.

### Holds preset relative humidity, regardless of variations in dry bulb temperature . . .

recorder-controller operates valve that regulates flow of humidifying agent; can be made gas-tight



Bars across case of humidity controller make it gas-tight

**Uses:** Records and automatically controls relative humidity. Employed in those processes requiring a close control of humidity in the surrounding area. Can be adapted to gas applications, such as measurement of saturation of natural gas in mains.

**Features:** Maintains set relative humidity

of room, regardless of fluctuations in dry-bulb temperature.

**Description:** Utilizes psychrometric wet and dry bulb principle. Two pens operate on circular 10" chart, simultaneously recording the dry bulb temperature and wet bulb depression. Flow of humidifying agent is regulated by a valve operated by instrument.

When used for applications involving gas, bars can be clamped on case of instrument to make it gas-tight.

**Source:** This Tagliabue instrument is a product of Weston Electrical Instrument Corporation, Dept. CP, 614 Frelinghuysen Ave., Newark 5, N. J. . . . or for more information check CP 8499 on handy form, pages 2 & 3.

### Air-gas ratio measurements given by flow rate indicator . . .

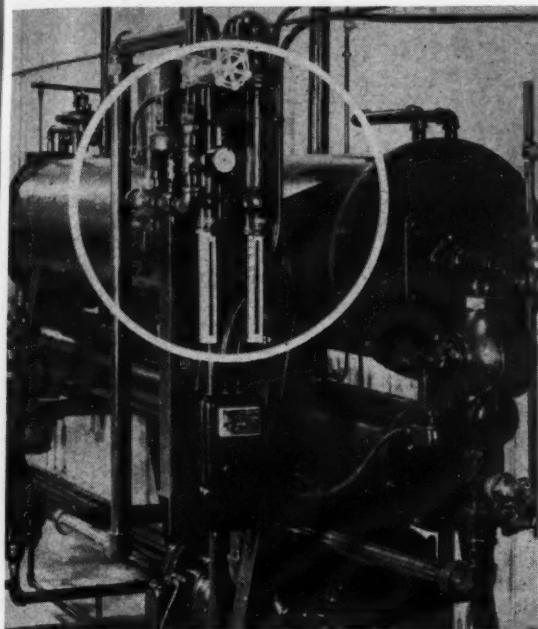
**Uses:** For measuring rate of gas flow where data about air-gas mixtures are required for efficient combustion.

**Features:** Individually calibrated by manufacturer

or the characteristics of the gases to be measured. Indicators contain only 1 moving part, are durable, easy to disassemble and clean.

**Description:** Indicators in single and dual mounts are available for specific gravities between 0.56 and 1.02, for temperatures to 150° F, and for pressures to 10 psi.

Gas enters at bottom of tapered vertical metering tube, passes up around float, and through outlet at top of tube. Kinetic energy of rising gas stream raises float assembly until lifting force of stream is equaled by



Indicators show air-gas ratio entering combustion-type gas converter

downward pull of gravity. Since vertical tube is tapered, the annular orifice surrounding the float varies with float level; a low rate of flow requires a small orifice and leaves the float near the bottom, while a higher flow rate requires a larger orifice and consequently raises the float.

Connected to metering float is a rod extending through bottom of tube and terminating with indicator disc. Disc rises and falls with float, but in an oil-filled, graduated sight glass. Oil serves to dampen "fluttering" and prevents sudden flow increases from banging float against top of metering tube.

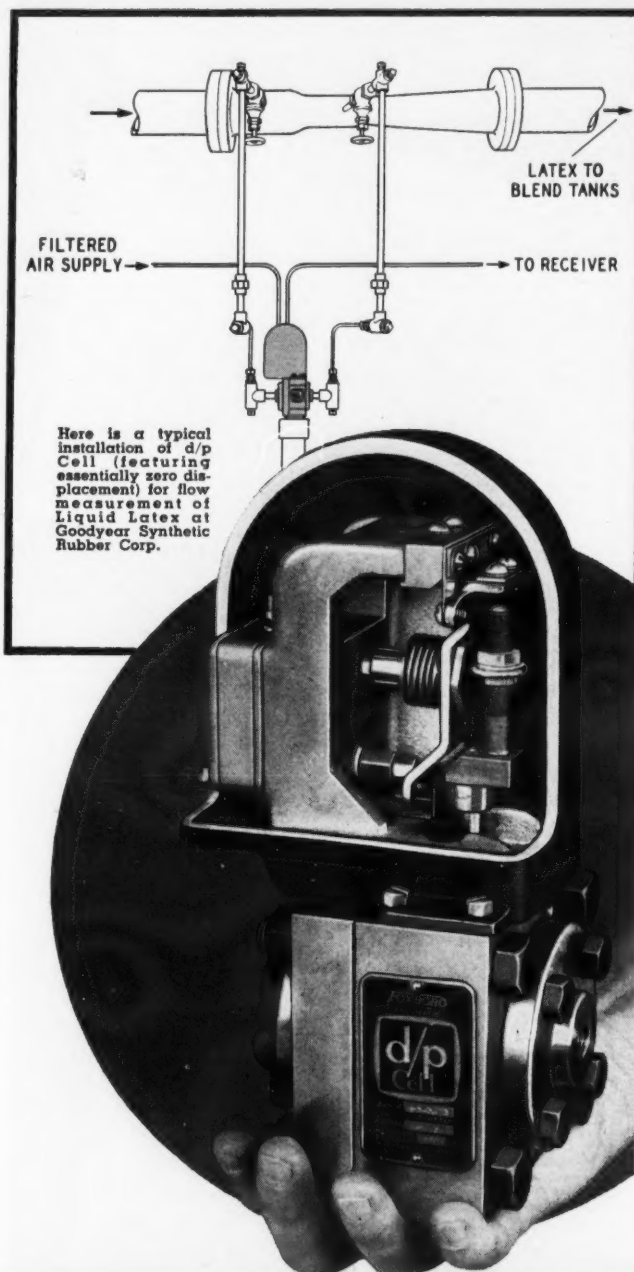
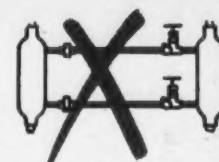
**Source:** "Flo-Scopes" are made by Selas Corporation of America, Dept. CP, Erie Ave. and D St., Philadelphia 34, Pa. . . . or for more information check CP 8500 on handy form, pages 2 and 3.

#### Flow meter theory, practice, construction explained

Thirty-one page flow meter bulletin illustrates and explains flow measurement problems and their solution. Meter bodies, differential devices, and reading instruments are fully described, and a special section is included on wide range and reverse flow. Numerous drawings and photographs help to explain both theory and practice of metering. Informative and interesting, Data Book 702 is available from Republic Flow Meters Co., Dept. CP, 2240 Diversey Parkway, Chicago 47, Ill. When inquiring specify CP 8501 on handy form, pages 2 and 3.

JULY, 1950

## NOW — measure flow of viscous or corrosive fluids without seal pots



Here is a typical installation of d/p Cell (featuring essentially zero displacement) for flow measurement of Liquid Latex at Goodyear Synthetic Rubber Corp.

You can cross seal pot troubles right off your list when you measure the flow of viscous or corrosive liquids with a Foxboro d/p Cell (differential pressure pneumatic transmitter). Goodyear did it very successfully on one of the toughest jobs . . . the control of latex flow to a coagulator. Here are the results obtained by this leading manufacturer through the use of the mercuryless d/p Cell:

- A. 83% reduction of instrument cleaning and maintenance costs.
- B. No unscheduled production shut-downs for instrument maintenance.
- C. Estimated savings over previous flow measuring system will return cost of d/p Cell installation in approximately 1 year.

These cost-saving achievements were made possible by the elimination of seal pot disadvantages . . . (frequent and time-consuming clean-outs, constant risk of clogging, instrument inaccuracies, etc.). A complete "Technical Report on Savings Effected at Goodyear Synthetic Rubber Corporation through Control of Latex Flow by d/p Cell" is available. Send for a copy and details of the unique d/p Cell. The Foxboro Company, 16 Neponset Ave., Foxboro, Mass., U. S. A.

# FOXBORO

REG. U. S. PAT. OFF.

## d/p CELL

for better flow measurement

When inquiring check CP 8502 on handy form, pgs. 2-3

### Adapts pneumatic controllers for throttling control of electric current . . .

ultimate results are control of temperature, flow, speed, or pH

**Uses:** Permits the use of standard pneumatic controllers on applications requiring regulation of electric current for the ultimate control of temperature, flow, speed, pH, etc. Uses the output pressures of such pneumatic controllers to actuate variable rheostats, potentiometers, or transformers.

**Features:** Attains complete throttling control through 310° angular rotation, required for full scale movement

of many commonly used electrical components. Variety of standard and custom-built assemblies are available to meet many installation requirements.

#### Description:

Model EB pneumatic current controllers consist of a standard electrical component (modified for continuous throttling control service), and a pneumatically operated cylinder which includes an integrally mounted positioning device to provide sensitivity of positioning to within 1/500 part of its total travel. Smooth operation and a minimum of hysteresis is accomplished by extending the shaft of the standard electrical component so it may be carried in an outboard bearing. Piston stem of the cylinder operator is guided by roller bearings to assure alignment.

Standard electrical components may be, for example, General Radio Company's "Variac", or Superior Electric Company's "Powerstat". A specially designed rheostat-potentiometer of 10-watt, 10,000-ohm rating can be used with some of the electronic speed control units (General Electric Thymotrol, Westinghouse Mototrol, etc.).

Variac and Powerstat assemblies are made for single and three-phase operation; overall KVA ratings for various models range from 0.17 to 25.

Additional information on Model EB pneumatic current controllers is given in bulletin, Conodata No. 1001.

**Source:** Product of the Conoflow Corporation, Dept. CP, 2100 Arch St., Philadelphia 3, Pa. . . or for more information check CP 8504 on handy form, pages 2 & 3.

### Accurate indication of temps given by thermocouple and resistance thermometers . . .

resistance units accurate to 300° F; thermocouple indicators accurate to 3000° F

**Uses:** Resistance thermometers are used to give accurate indications of temps to 300° F. Typical uses include indication of bearing temps, transformer and gen-



Current controller consists of pneumatic operator and electrical component

### TEST TUBE HOLDER

Simplifies direct measurement of samples in round test tubes



A metal carriage rigidly holds test tubes from 10 mm to 25 mm (1") in diameter in special lightproof housing. A single holder accommodates the various sizes of test tubes and allows exact relocation of tubes horizontally, vertically and rotationally. An accessory unit also permits use of 2" beakers interchangeably in the same carriage.

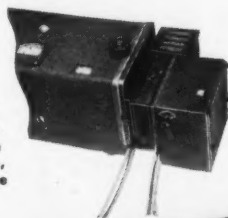
Designed for oil chemistry; Vitamin "A" analyses; clinical and medical applications, and many other routine uses.

### THERMOSPACER

Enables temperature control of sample compartment

A corrosive-resistant, light-tight, metal plate contains internal coils for circulating constant temperature fluid. Thermospacers mount directly on standard instrument. Can be used singly or in combination to maintain sample compartment constant at any temperature between 0 and 100°C. The standard Model DU cell compartment can be held to less than one degree change for a ten degree change in ambient temperature.

Designed for greatest measurement accuracy with the Model DU . . . and for special measurements such as chemical analyses at constant temperature; the study of reaction rates at various temperatures; precise measurement of extinction values, and other applications where close temperature control is essential.

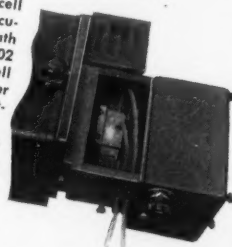


### SHORT PATH FLOW CELL

For extremely short path length measurements on flowing or static samples

Consists of two flat, transparent plates which form an internal cell through which sample can be circulated without exposure to air. Path lengths from 0.05 to 2.5 mm (0.002 to 0.098 in.) available. A special cell compartment containing cell holder and precision positioning carriage attaches directly to Model DU.

Quartz optics permit full-range measurements, 220 to 1000 mμ . . . All critical surfaces optically polished to 1/4 wavelength for precise measurements . . . Extreme flatness of plates allows fluid-tight seal without gaskets or sealing compounds. Designed for flowing or static measurements on strongly absorbing samples without dilution; on blood samples in vivo under anaerobic conditions (such as determining oxygen capacities of whole blood); for microchemical studies of reaction rates, etc.



### 50 cm. LIQUID ABSORPTION CELL

For long path length measurements on weakly absorbing samples

To conserve sample volume, the cell is only 25 cm. long, the light beam passing twice through the sample before reaching the phototube. A special lightproof cell compartment provides a convenient means of standardization without the necessity of using a reference cell. All optical parts are of quartz to utilize full Model DU measurement range. Liquid seals made without gaskets to avoid sample contamination. Careful design eliminates scattered light effects.

Designed for dilute solutions and weakly absorbing samples where a long path length is required. Also for use with flowing samples and for utmost sensitivity in nephelometric measurements to determine, in addition to intensity, the distribution and average size of light-scattering particles.



## BECKMAN "DU" SPECTROPHOTOMETER

Long the standard research spectrophotometer for ultraviolet, visible and near-infrared measurements, the Beckman "DU" assumes even greater usefulness through the development of new accessory equipment.

Most recent additions to the diversified line of accessories are the four described at right. Detailed information on these and other accessories will be gladly sent on request. Beckman Instruments, National Technical Laboratories, South Pasadena 11, Calif.

**BECKMAN INSTRUMENTS**  
control modern industries

Radiation Meters—Special Analytical Instruments

pH Meters and Electrodes—Spectrophotometers

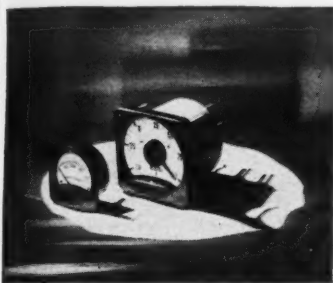
When inquiring check CP 8503 on handy form, pgs. 2-3

## PROCESS INSTRUMENTATION

erator temps, drying operations, remote fluid temps, conditions in refrigeration and air conditioning tests, etc.

Thermocouple units give temp indications to 3000° F, are used in galvanizing vats, furnaces, melting pots, kilns, ovens, similar installations.

**Features:** Accuracy of thermocouple units is plus or minus 2% of full scale. Accuracy of resistance thermometers is approximately plus or minus 1% of scale.



Thermocouple thermometer (left), and long-scale resistance thermometer

sizes are furnished in either square or round molded Textolite cases.

Resistance thermometers are produced in 2 standard types: DB-15 long-scale, and DD-6 and DD-7, 6-inch rectangular cases. Further information is carried in manufacturer's bulletin GEC-565.

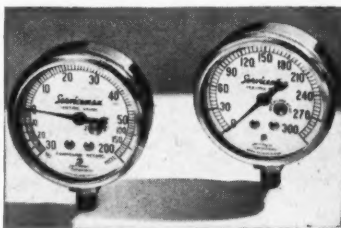
**Source:** General Electric Co., Dept. CP, Schenectady 5, N. Y. . . . or for more information check CP 8505 on handy form, pages 2 and 3.

### Refrigeration testing accurate to plus or minus 1% with handy gauge set . . .

turn recalibrator screw to adjust pressure and compound retard gauges when necessary

**Uses:** Refrigeration testing gauge set, consisting of compound retard gauge and a pressure gauge for use with manifolds and other testing.

**Features:** Calibrated to plus or minus 1% accuracy throughout their entire ranges. Both gauges have Marsh "recalibrator" to restore accuracy when knocked out of adjustment; this is operated by turning screw on face of gauge. The recalibrator reestablishes relation of bourdon tube to movement, thus correcting gauge for entire range — particularly important in a testing gauge.



Refrigeration testing gauge set

**Description:** Heavy-duty bronze bushed movements. Knife-edge pointers facilitate close reading. Screwed, knurled ring gives quick access to recalibrator screw.

Both units are in 2 1/2" polished brass cases with beveled glass crystals. Retard scale of compound gauge, graduated 30-0-200, has legible 1-lb graduations through important testing range of 0 to 50 lbs.

**Source:** Jas. P. Marsh Corporation, Dept. CP, Skokie, Ill. . . . or for more information check CP 8506 on handy form, pages 2 and 3.

JULY, 1950

# BULLETINS . . .

on all SK products are available and can be obtained by writing to us at the address below. However, if you have a particular power or process problem—and need immediate assistance—don't hesitate to call us at STEVENSON 4-0900.

Since we offer an engineering as well as a manufacturing service, our experienced engineers are prepared to give you whatever help they can.

## SCHUTTE and KOERTING Company

*Manufacturing Engineers*

1173 THOMPSON ST. • PHILADELPHIA 23, PA. • TWX No. 1 PH 782

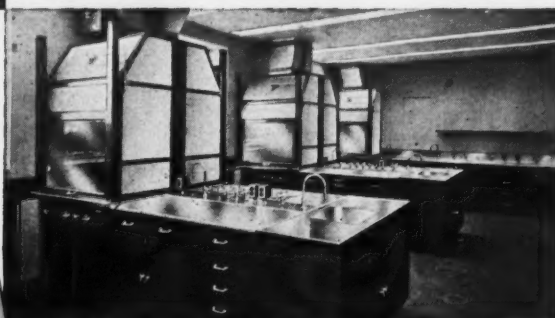
JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS • FLOW INDICATORS • RADIATION TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS • DESUPERHEATERS

When inquiring check CP 8507 on handy form, pgs. 2-3

## YOUR DREAM OF A LAB A REALITY AT METALAB



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NEW Complete  
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and Equipment



Dreaming of a new, beautiful Lab? Planning to add to your present equipment?

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When inquiring check CP 8508 on handy form, pgs. 2-3



OTHER  
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AVAILABLE

## MORE for Your Money

### 3 Plus Values in POWERS No. 11 INDICATING REGULATORS

- 1 Easy to Read 4" Dial Thermometer shows temperature of process or operation under control.
- 2 Valve Stem Lubricator at no extra cost.
- 3 Over-Heat Protection at no extra cost.

Reduce Costs—with this better type of self-acting temperature regulator. It prevents OVER-heating. Controls liquids or air, heating or cooling. Valve Sizes 1/4 to 2" incl. Available without thermometer, sizes 1/4 to 6".

► WRITE FOR BULLETIN 329 • THE POWERS  
REGULATOR CO. • 2769 Greenview Ave.  
Chicago 14, Ill. • Offices in 50 Cities (11N)

SELF  
ACTING  
CONTROLS  
TEMPERATURE of LIQUIDS or AIR  
Simple • Economical • Dependable

**POWERS**

When inquiring check CP 8509 on handy form, pgs. 2-3

## PROCESS INSTRUMENTATION

**Induction actuates ammeter,  
eliminating need for  
usual connections . . .**

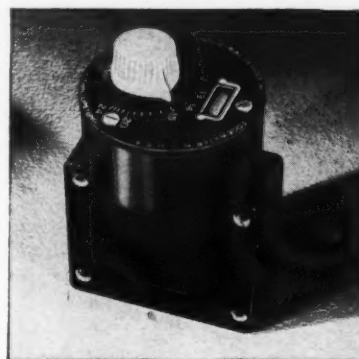
loops of ac-carrying wire produce similar current in meter circuit without direct contact

**Uses:** As ammeter in 60 cycle/ac lines, especially useful for quickly checking suspected overloads.

**Features:** No direct connections are necessary; power line is simply looped through opening in meter.

**Description:** Unit consists of a laminated silicon steel core assembly, a secondary winding on the core, a calibrated potentiometer, and a stabilized glow lamp; life of lamp gives 25,000 hours of continuous service, and other components may be expected to last indefinitely. Accuracy is within 5%, and meter can be overloaded without damage.

In use, circuit to be tested is first broken and one lead of the power line passed through the rectangular opening in the meter. Circuit is reconnected. Knob is then rotated clockwise until the pilot light extinguishes. Current can be read directly from the knob scale at this point.



Induction-actuated ammeter needs  
no direct connections

Meter is calibrated for lines carrying from 10 to 24 amperes. In the event that the line under test carries less current, several loops of the power lead can be passed through the meter. This increases the flux density by a factor equal to the number of times the current-carrying wire passes through the opening, and the scale reading must consequently be divided by that factor to obtain actual current. Operating principles are simple; loops of current-carrying lead induce a proportional current in meter circuit. Neon lamp and potentiometer are tied in, knob adding resistance until extinction voltage of lamp is reached.

**Source:** Mini-Amp 810 is made by Industrial Devices, Inc., Dept. CP, Edgewater, N. J. . . or for more information check CP 8510 on handy form, pages 2 and 3.

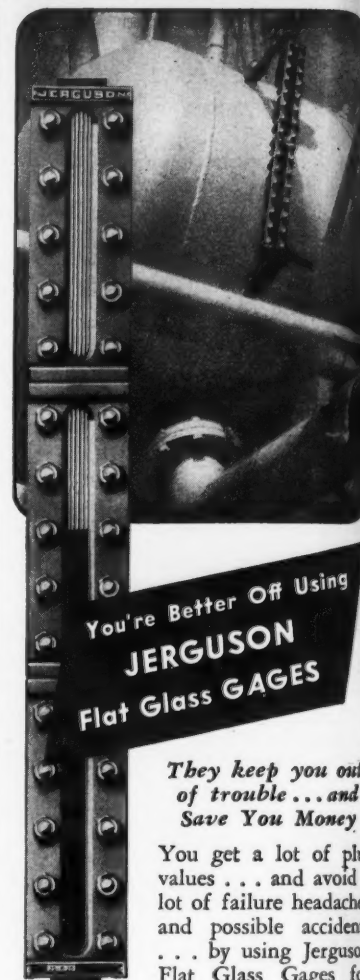
**Silver switches cut contact  
resistance of ohmic  
standards . . .**

zero resistance is less than 0.002 ohm per decade; changes less than 0.0005 ohm in life tests

**Uses:** Resistance boxes for moderate-precision, adjustable standards in d-c and in a-c resistance measurements up to medium frequencies.

**Features:** Low and stable contact resistance of rotary switch is achieved by use of solid silver switch contacts and silver alloy multiple-leaf brushes.

**Description:** Knurled, all-metal terminals accommodate banana plugs, spade or spring clips, or bare wire



You're Better Off Using  
**JERGUSON**  
Flat Glass GAGES

*They keep you out  
of trouble . . . and  
Save You Money*

You get a lot of plus values . . . and avoid a lot of failure headaches and possible accidents . . . by using Jerguson Flat Glass Gages for every liquid level indicating use.

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You get the kind of gages and valves you want to do YOUR JOB. Jerguson offers you the most complete line available. Jerguson offers you an engineering organization specializing in building special gages to meet problems.

Jerguson Flat Glass Gages save money and labor. They are easy to install. They stand up . . . you don't have to keep servicing them or replacing the glass. They are available in a wide range of sizes, pressures, designs and materials; also with polished end stems to replace present tubular gages.

Write us about  
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Gages and Valves for the  
Observation of Liquids and Levels  
**JERGUSON GAGE & VALVE COMPANY**  
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Representatives in Major Cities  
Phone Listed Under JERGUSON

When inquiring check CP 8511  
on handy form, pgs. 2-3

CHEMICAL PROCESSING



## BURRELL FURNACES

Furnaces for experimental melting, sintering, heat-treating and for other analytical procedures requiring high temperatures up to 2650° F.

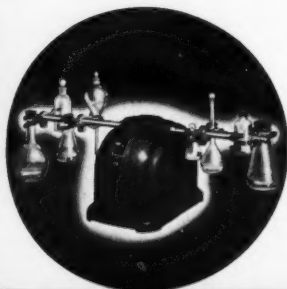
Bulletin 210

"Unit-Package" Tube Furnaces

Bulletin 315

"Dual-Range" Box and Muffle Furnaces.

Write for Literature.



## "WRIST-ACTION" SHAKER

Burrell's "Wrist-Action" Shaker is a fast, simple shaker for general laboratory use. It simulates the snap of the wrist, creating a swirling splash. The new "Finger-Grip" clamp holds most flasks, funnels and bottles. 115 V. Write for Bulletin 207.

75-775-B... 8 Flask size... \$145.00



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PITTSBURGH 19  
PENNSYLVANIA

When inquiring check CP 8512 on handy form, pgs. 2-3.

## PROCESS INSTRUMENTATION

of any size without danger of shearing. Housing is of grey enameled metal, and device is thoroughly shielded. Current rating for each decade is engraved on nameplate.

Four-dial model has range of 11,110 ohms in 1-ohm steps. Five-dial model covers 11,111 ohms in 0.1-ohm steps or 111,110 ohms in 1-ohm steps. Contact resistance of switches is less than 0.002 ohm per decade and changes less than 0.0005 ohm per decade in accelerated life tests. Time constant at 50 kc for usual range of dial settings is less than 0.05 microsecond. Limit of error is  $\pm$  (0.05 per cent + 0.005 ohm).

**Source:** Resistance boxes are a product of Leeds & Northrup Company, Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa. . . or for more information check CP 8513 on handy form, pages 2 and 3.

### Scale of viscometer calibrated in centipoises . . .

sensitive instrument reproduces results throughout range of 0 to 5000 cp

**Uses:** Measuring viscosity of any liquid of the free-flowing Newtonian type—up to 5000 cp. Capable of obtaining results with such widely diversified materials as glycerine and water, salad dressings and maple syrup.

**Features:** Viscosity indicated directly in centipoises. Instrument is reported to provide highly reproducible results, to possess excellent sensitivity over its full range, and to be simple to operate.

**Description:** Stand of the Electroviscometer holds a sample cup which rotates at constant speed. The liquid



Indicates viscosities directly in centipoises

under test is held in the cup. A bobbin is lowered into the sample, and is rotated by a variable magnetic field. Direction of rotation is opposite to that of the sample liquid. When the magnetic force applied to the bobbin exactly counter-balances the liquid's "drag" on the bobbin, the viscosity is read on scale of instrument. Magnetic force is adjusted by control knobs on separate power supply and meter unit.

Includes bobbins of two sizes, one for 0 to 500 cp and the other for 500 to 5000 cp. Stand holds a removable constant temperature bath and a ventilating fan to cool the magnetic coil above the bobbin. Operates on 110 VAC.

**Source:** Product of Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 8514 on handy form, pages 2 and 3.



# MASONEILAN

## 12,000 Series Liquid Level Controllers

*are the choice of the  
Process Industries*



Model  
12,600

- Controller mechanisms are available for a wide variety of liquid level applications.
- Ten Controller mountings are available for all usual vessel requirements.
- Wide selection of type, material, chamber rating and level ranges.
- Level Indicator for use in servicing . . . transmitter for remote indication.
- Right or left hand instrument mounting . . . reversible in the field.
- Control action easily reversed.

Masoneilan 12,000 Series displacement-type level controllers provide positive, accurate liquid level control. They are available in a wide choice of standard ranges from 14 inches to 15 feet. They meet practically all requirements for liquid level control including interface service and remote level indication. Write for information.

MASONEILAN

## MASON-NEILAN REGULATOR CO. 1203 Adams Street, Boston 24, Mass.

Sales Offices or Distributors in the Following Cities: New York • Syracuse • Chicago • St. Louis • Philadelphia • Houston • Denver • Pittsburgh • Cleveland • Cincinnati • Tulsa • Atlanta • Detroit • Los Angeles • San Francisco • Salt Lake City • El Paso • Boise • Albuquerque • Charlotte, N. C. • Mason-Neilan Regulator Company, Ltd., Montreal and Toronto

When inquiring check CP 8515 on handy form, pgs. 2-3

**IT'S GOODBYE**  
**Forever**  
**TO THESE TROUBLEMAKERS**



**IN PLANTS EQUIPPED WITH CASH STANDARD TYPE Streamlined VALVES**

**The Reasons Why IT HAPPENS ARE TOLD BY USERS AS FOLLOWS . . .**

**Check what the users say against the Benefit Points Below**

**• A Chemical manufacturer says—**

"The CASH STANDARD Type '1000' valves which we have in service have fulfilled the conditions checked . . . (ACCURATE PRESSURE CONTROL UNDER TOUGHEST WORKING CONDITIONS), (TROUBLE FREE SERVICE), (TIGHT CLOSURE) better than any other steam pressure reducing valves that we have used."

**• A Metal Products company says—**

"We have had a number of your CASH STANDARD Type '1000' valves in operation in our plant for a number of years. These valves have proved to be satisfactory in every respect. We particularly like this type of valve because it is **SIMPLE TO INSTALL, REQUIRES A MINIMUM OF MAINTENANCE, and gives CONTINUOUS and UNIFORM PRESSURE CONTROL.**"

**• A Plant Engineer says—**

"We find that the CASH STANDARD Type '1000' streamlined valves are best suited for our various applications of compression molding because of their **VERY WIDE RANGE OF ACCURATE PRESSURE CONTROL.** The simplicity of construction of these valves has kept the **MAINTENANCE COSTS VERY LOW** which of course means a **SAVING IN COST OF OPERATION, and SPEEDIER PRODUCTION.**"

**WRITE FOR BULLETIN 962**

**THESE ARE THE BENEFITS YOU GET BECAUSE OF ITS ASPIRATOR AND STREAMLINED FLOW . . .**

Maximum Capacity When Needed Most • Accurate Pressure Control Under Toughest Working Conditions • Trouble-Free Service • Smooth Operation • Tight Closure • Accurate Regulation • Speedier Production Results • Elimination of Failures • Constant Delivery Pressure • Cost Saving Operation • No Spoilage • Practically Zero in Maintenance Costs

**CASH STANDARD CONTROLS VALVES**

**A. W. CASH COMPANY DECATUR, ILLINOIS**

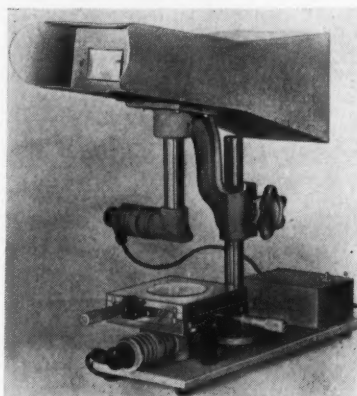
When inquiring check CP 8516 on handy form, pgs. 2-3

**PROCESS INSTRUMENTATION**

**Close inspection of surfaces and contours . . .**

portable, projecting, magnifying instrument accurate to 0.0001" when measuring points on object

**Uses:** Inspection of surfaces and of contours (outlines). Surface inspection is useful on such items as dies, stampings, surface conditions on various types of materials. Contour inspection finds use in measuring gear tooth pitch, templates, and similar procedures. It is also used for measurement and control of settings or



Instrument for visual inspection of surfaces and contours

motions in meters, instruments, vibrators, electrical controls.

**Features:** Portable. Instrument makes it possible to measure distances between points on item under inspection to 0.0001". This accuracy is obtained without eyestrain.

**Description:** As can be seen in the illustration, the Universal Projector consists of a micrometer-adjusted mounting table which can be moved up or down or back and forth, a light source under the table for inspection of contours, a light source above the table for inspection of surfaces, a viewing screen, and the necessary optics.

The screen is 6" square and made of Textolite, one side being finished flat white. It has single vertical and horizontal crosslines; additional lines or layouts may be added by means of a scribe and vernier height gauge. The contour or surface reflection is magnified and projected on this screen by means of the optics of the instrument.

Measuring stage or table has travel of 1" in two planes, at 90° to each other, and is 5" square. Parts up to 5" high may be accommodated because the entire projection hood may be raised or lowered in relation to the measuring stage.

Standard magnifications are 10X, 20X, 30X, 45X and 60X, but special magnifications up to 120X are available. Operates on 110 VAC, other power ratings being available if desired. Special staging fixtures can be produced on request.

**Source:** Development of Stocker and Yale, Dept. CP, Marblehead, Mass. . . or for more information check CP 8517 on handy form, pages 2 and 3.

**Prevents dangers stemming from oil burner flame failure . . .**

photoelectric system shuts off fuel when flame dies; sealed units adaptable to all burner heads

**Uses:** Protection of manually ignited and semi-automatic industrial oil burners. When flame fails, instrument cuts off fuel; it can be wired to sound an alarm.

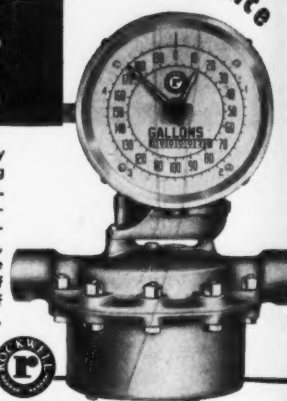
**Features:** Safety start circuit prevents burner from cycling if flame is detected or simulated prior to igni-

**DO YOU WANT TO MEASURE?**

**OIL LIQUORS PAINTS CHEMICALS SOLUTIONS**

**For Accuracy and Convenience**

**USE EMPIRE Industrial METERS**



You'll save time and money blending, batching, processing liquids with Empire meters. You'll get exact quantity control, quick! You'll cut evaporation loss, reduce fire hazards, prevent contamination. Pipe sizes, 1/2 in. - 3 in. a variety of registers. Automatic shut-off available on some models. Write for bulletin.

Dept. G

PITTSBURGH EQUITABLE METER DIVISION

**ROCKWELL MANUFACTURING COMPANY**  
Pittsburgh 8, Pa.

When inquiring check CP 8518 on handy form, pgs. 2-3

**SAVE TIME . . . STORAGE SPACE . . . AND AVOID SPILLAGE**

**with TELLEVEL AUTOMATIC BIN-LEVEL CONTROL**



Let TELLEVELS watch your bin-level for you . . . Avoid empty or overflowing storage bins.

Mount a TELLEVEL near the top and another near the bottom of your storage bin . . . As the material-level falls or rises, the light pendant is pushed aside . . . Automatically starts or stops conveyor, elevator or pump . . . Can be furnished for bulk materials or liquids.

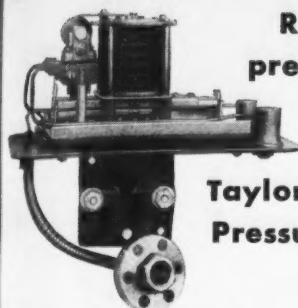
Check possible uses. Write now for Bulletin No. 440.

**STEPHENS-ADAMSON MFG. CO.**

Tellevel-Bin Level Controls • Car Loaders • SealMaster Ball Bearings • Saco Speed Reducers • Car Pullers • Winches

**11 RIDGEWAY AVE., AURORA, ILLINOIS**

When inquiring check CP 8519 on handy form, pgs. 2-3



## Read changing pressures instantly 1000 ft. away with new Taylor "TRANSAIRE" Pressure Transmitter

\*Trade-Mark

New Taylor TRANSAIRE Pressure Transmitter with narrow range spans lets you measure and transmit minute pressure changes up to 1000 feet with instant accuracy! Works on simple force-balance principle. Gives you accuracy of  $\frac{1}{2}\%$  of range span (conventional devices are only accurate up to  $\frac{1}{4}\%$  of upper range limit). Here's accuracy and sensitivity never before possible in pressure measurement—plus the convenience of suppressed ranges at high pressure levels.

### 7 IMPORTANT ADVANTAGES:

1. Range spans of 20 to 40 psi available throughout range limits of 35 to 415 psia.
2. Volumetric type pressure system is extremely accurate, practically clog-proof, has corrosion-resistant 316 stainless steel diaphragm.
3. Temperature and barometric compensation for higher accuracy.

4. Perfect for many jobs, especially thin fractionating columns.

5. No individual calibration of receivers or controller—thanks to standardized 3 to 15 psi output air pressure.

6. Simple screwdriver adjustment for shifting the operating ranges.

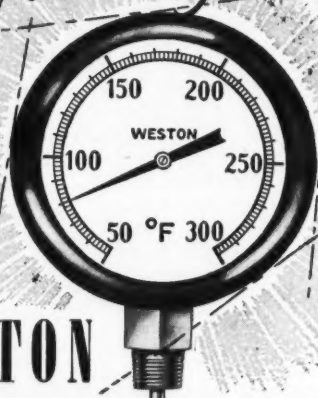
7. Interchangeable manifold assemblies make 20 and 40 psi range spans optional.

This Taylor TRANSAIRE Pressure Transmitter is another step in Taylor's program to produce industrial instrumentation unsurpassed in accuracy, simplicity, and durability. We're doing this, of course, to help you keep costs down and quality up. Ask your Taylor Field Engineer! Or write for BULLETIN 98099. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

TAYLOR INSTRUMENTS MEAN "ACCURACY FIRST"

When inquiring check CP 8520 on handy form, pgs. 2-3

*Easy on the Eyes!*



## WESTON All-Metal THERMOMETERS

Easy on the eyes—that's just one feature of easy-to-read Weston Thermometers.

Easy on the mind—you can relax when Weston Thermometers supervise important processes.

Easy on the budget, too—Weston Thermometers serve dependably . . . year in, year out. Check your Weston Representative—or write Weston Electrical Instrument Corporation, 706 Frelinghuysen Ave., Newark 5, New Jersey . . . makers of Weston and Tagliabue instruments.

WESTON Instruments

When inquiring check CP 8521 on handy form, pgs. 2-3

JULY, 1950

## PROCESS INSTRUMENTATION

tion. Failure of phototube or vacuum tube causes instantaneous safety lockout of burner. Electrical interlock prevents starting of burner if flame relay sticks in closed position.

Unit is adaptable to all burner heads, is immune to moisture and electrical leakage and is protected from products of combustion.

**Description:** Fireye System FF-3 consists of scanner Type 45PH5 and control type 24QJ5. The scanner is housed in a dust-tight aluminum case and contains the entire electronic system including phototube and vacuum tube amplifier. It is located on the burner mounting plate so it has a clear view of the flame at all times.



Control and scanner of photoelectric flame failure safeguard

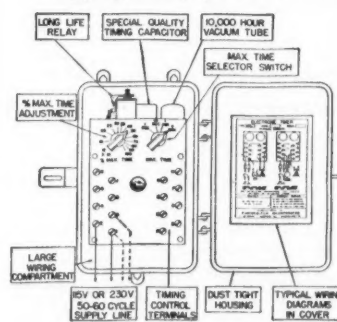
The control is housed in a dust-tight steel case and contains power supply and relay system. It is mounted on the control panel. Power relays are located with power contacts readily accessible for cleaning.

System operates from 115/230 V, 60-cycle AC and consumes 20 VA power. Auxiliary controls consist of 2-wire thermostat or pressure switch and manual start pushbutton.

**Source:** Combustion Control Corporation, Dept. CP, 77 Broadway, Cambridge 42, Mass., is the maker . . . or for more information check CP 8522 on handy form, pages 2 and 3.

### Flexibility of timing cycle featured in electronic timing device . . .

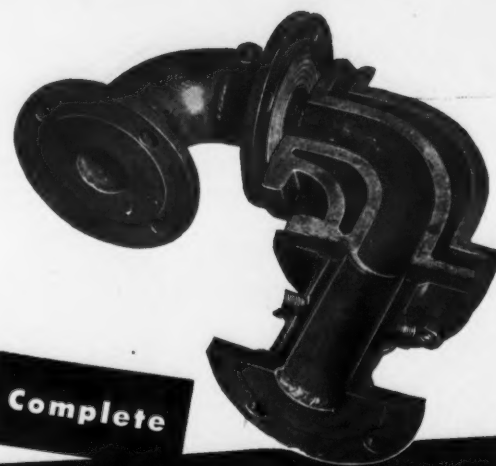
variations of 4 basic patterns achieved through tapping many points of circuit



Electronic timer rated at 25 watts

**Description:** Supplied by a 115 or 230 v, 50/60 cycle line, electronic timer functions to an accuracy of within 2%. Power input requirement is 25 watts. Ambient temperature is 32-150° F, and ambient relative humidity is 20-95%. Employing only 1 tube and 1 relay, 8-lb timer is self-compensating for changes in line voltage.

**Source:** Photoswitch Incorporated, Dept. CP, 77 Broadway, Cambridge 42, Mass. . . . or for more information check CP 8523 on handy form, pages 2 and 3.



Complete

## Jacketed Pipe and Fluidometer Systems

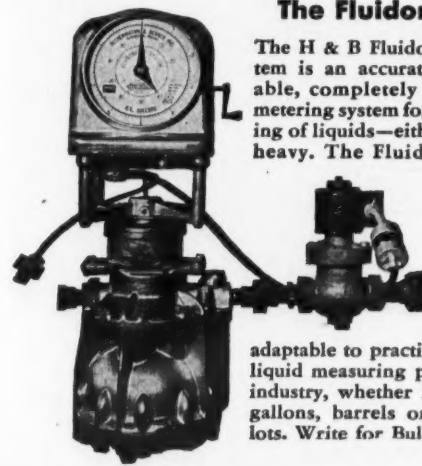
### For All Liquid Handling Problems



H & B Jacketed Pipe Systems are engineered and manufactured to meet every requirement of dependable and economical processing in operations where the maintenance of uniform temperature in the process pipes is highly essential. Regardless of whether the product being handled requires a hot or cold temperature, or what heating or cooling medium is used, H & B Jacketed Pipe and Fittings help assure efficient production. Write for Bulletin S-47.

### The Fluidometer

The H & B Fluidometer System is an accurate, dependable, completely automatic metering system for the batching of liquids—either light or heavy. The Fluidometer is



adaptable to practically every liquid measuring problem in industry, whether it involves gallons, barrels or tank car lots. Write for Bulletin F-46.

HETHERINGTON & BERNER INC  
711 Kentucky Avenue, Indianapolis 7, Indiana

When inquiring check CP 8524 on handy form, pgs. 2-3

# Depend on AUTO-LITE FOR TEMPERATURE INDICATION



Model G Thermometer (one-to-one ratio, liquid filled type) Priced from \$18.



Model V Thermometer (vapor pressure type) Priced from \$10.25.

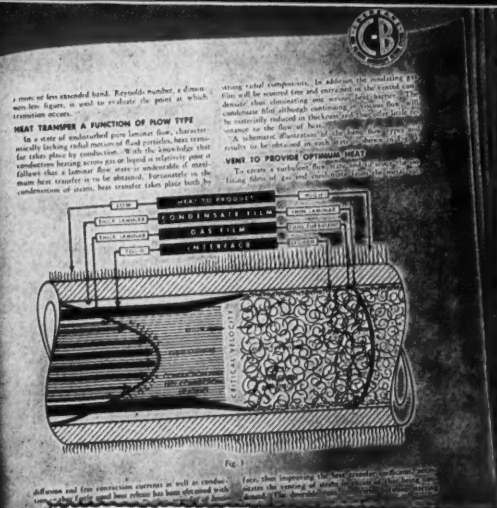
Auto-Lite Indicating Thermometers are available in many types and sizes, with a choice of temperature ranges and mountings to meet your needs. Send for catalog.

THE ELECTRIC AUTO-LITE COMPANY  
INSTRUMENT AND GAUGE DIVISION • TOLEDO 1, OHIO  
NEW YORK CHICAGO SARNIA, ONTARIO

**AUTO-LITE**  
INDICATING & RECORDING THERMOMETERS

When inquiring check CP 8525 on handy form, pgs. 2-3

## If you use process steam you'll want this valuable book —



**COCHRANE CORPORATION**  
3162 N. 17th St., Philadelphia 32, Pa.  
In Canada: Canadian General Electric Co., Ltd., Toronto  
Please send me a copy of your Publication No. 3250 on Cochrane C-B System of Condensate Return  
Name \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

When inquiring check CP 8526 on handy form, pgs. 2-3

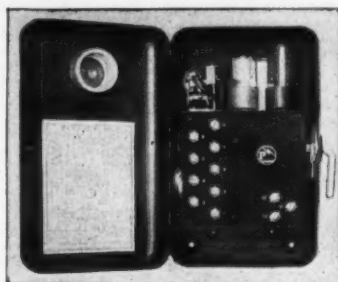
## PROCESS INSTRUMENTATION

### Photoelectric controls have many applications . . .

phototubes are either integral part of control or in separate housing

**Uses:** General purpose photoelectric control. Recommended for such applications as counting; conveyor control; short-range signal systems; motor or valve control; production inspection; machinery safeguards; stop-motion control in the textile, paper, and wire industries; as well as automatic control for many other specialized industrial processes.

**Features:** Versatile. Available with phototube either integral with the control, or located in a separate small housing.



Supplied with forward and reverse circuits so tube replacement is indicated by either an energized or de-energized relay, making it useful in all types of safety applications. Tamper-proof sensitivity adjustment permits positive operation over varying distances between phototube and light source.

**Description:** Series 20 photoelectric controls are designed for high speed; relay operates in 1/20 sec. Operating range is 10' with L30 and 40AD1 light source, and 20' with L60 light source. Requires 115/230 v, 50/60 c a-c power supply. Relay is double-pole double-throw type; maximum rating is 10 a 115 v a-c, 5 a 230 v a-c — non-inductive, and 1/2 hp 115/230 v a-c with both poles wired in parallel.

Additional information on these controls is contained in manufacturer's Bulletin PA 478.

**Source:** Product of Photoswitch Incorporated, Dept. CP, 77 Broadway, Cambridge 42, Mass. . . or for more information check CP 8527 on handy form, pages 2 and 3.

### Single pressure transmitter actuates several measuring instruments . . .

single measuring instrument may be employed for monitoring several pressure transmitters

**Uses:** Pressure transmitter for actuating manometers, recorders, controllers, pressure gauges, or pneumatically operated mechanisms. Suitable for applications involving measurements of liquid level in pressure and vented tanks, of specific gravity, of pressure, of flow, or of vacuum.

**Features:** Employs force-balance air flow principle for operation — promoting high accuracy and sensitivity due to absence of levers, pivots, and fulcrums.

Instruments receiving transmitted pressures may be located at or remote from transmitter. Number of such receivers (installed at various locations) may be actuated by one transmitter, or one receiver may be used for monitoring a number of transmitters (by interposition of a selector valve at receiver station).

Transmitting air pressure is isolated from material whose properties are being measured — thus avoiding aeration

## CAMBRIDGE

### VOLTAMSCOPE (an indicating instrument)

AND

### VOLTAMOGRAPH (a recording instrument)

FOR

### POLAROGRAPHIC ANALYSIS



The VOLTAMSCOPE is a non-recording instrument on which the voltage and current are read and manually plotted. Many chemical determinations are simply made by reading the currents of two known voltages and finding the difference.

The VOLTAMOGRAPH consists of a robust pen-writing galvanometer with amplifier and a potentiometer with chart driving mechanism. Suitable for industrial and research purposes. The voltage-current graph is automatically drawn. Operates directly from A.C. line.

Identical electrodes are used for both indicating and recording models. Write for bulletin B 255.

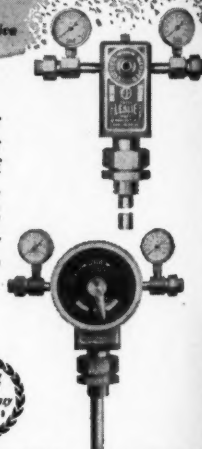
**CAMBRIDGE INSTRUMENT CO., INC.,**  
3706 Grand Central Terminal, New York 17, N. Y.  
PIONEER MANUFACTURERS OF PRECISION INSTRUMENTS

When inquiring check CP 8528 on handy form, pgs. 2-3

## Reduce Water Bills and Maintenance Costs

with the New **LESLIE** THERMOSTAT

Specially designed for cooling water service with greatly increased throttling range



It is a recognized fact that water cooled equipment, performs better and requires less maintenance if cooling water temperature is accurately maintained. New LESLIE Thermostat and Diaphragm Regulating Valve make an ideal Temperature Controller for this service.

### Features

THROTTLING RANGE  
BI-METALLIC ELEMENT  
SIMPLE  
RUGGED, RELIABLE



Send For — Bulletin 464-B

LESLIE Thermostats with 32° — 400° F adjustable range and with calibrated dial.

ESTABLISHED 1908  
**LESLIE**  
CO.

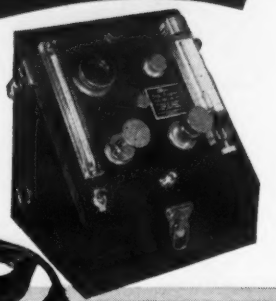
281 Grant Ave., Lyndhurst, New Jersey

PRESSURE REDUCING VALVES • PRESSURE CONTROLLERS  
FLOATLESS LEVEL CONTROLS • PUMP GOVERNORS  
TEMPERATURE REGULATORS • SELF CLEANING STRAINERS  
AIR HORNS • STEAM WHISTLES

When inquiring check CP 8529 on handy form, pgs. 2-3

# FASTER...EASIER

## PRECISION DEW POINT INDICATOR



★ The Alnor is the only dew point indicator that is a complete unit in itself... it is readily portable and does not require external coolants or auxiliary apparatus.

★ Controlled testing conditions are assured. Indications take place in an enclosed chamber... dew or fog is observed suspended in air—not on a polished surface. This means greater accuracy, faster reading—every time.

★ Simple, direct operation of the Alnor Dewpoint assures laboratory accuracy by non-technical personnel. Substantial carrying case protects it against the usual hazards of portable use.

★ Available in three ranges—for dew points between minus 20 deg. F. and room temperatures, from minus 80 deg. F. to 0 deg. F., and from -80 deg. F. to room temperature.

Write for Descriptive Bulletins. Illinois Testing Laboratories, Room 504, 420 N. LaSalle St., Chicago 10, Ill.

**Alnor**

PRECISION INSTRUMENTS  
FOR EVERY INDUSTRY

When inquiring check CP 8530 on handy form, pgs. 2-3



## LIQUID LEVEL CONTROLS

Control variations in levels from 1/4" upward. Remote control if desired—any distance. Controls unaffected by acids, caustics, pressures or temperatures.

Since 1933 B/W Controls have provided positive, dependable, economical liquid level control. No floats! No vacuum tubes! No moving parts in liquid.

WRITE FOR CATALOG

**B/W CONTROLLER  
CORPORATION**

Birmingham, Michigan  
2204 E. Maple Road

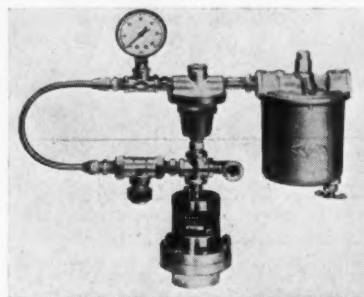
FIRST and FOREMOST  
IN THE FLOATLESS  
CONTROL FIELD

When inquiring check CP 8531 on handy form, pgs. 2-3  
JULY, 1950

## PROCESS INSTRUMENTATION

of such material. Furthermore, measured material is prevented from entering transmitting system in event of air supply failure.

**Description:** Transmitters are available with body



Pressure transmitter assembly comprising filter, differential valve, restriction orifice, and pressure gauge

construction in 5 different metals, and with 7 different diaphragm materials. Five types offer either direct pipe or pressure vessel mounting, insertion in tanks, or mounting on sealed tanks where a vapor pressure exists. Two units are available for each type: for

pressures from 0 to 150, and 0 to 600 pounds respectively.

**Specifications:** Range of measurements—minimum 1/2" W.C., maximum within 5 psi of maximum supply air pressure; absolute accuracy—±.1" W.C.; sensitivity—±.05" W.C.; response speed—90% recovery of 10 cu in volume in 10 seconds; and air consumption—0.48 cfh of free air in balanced position.

Complete information is included in maker's bulletin entitled "F-C Pneumatic Transmitter".

**Source:** F-C Series 5000 pressure transmitters are a product of Instruments, Inc., Dept. CP, Tulsa, Okla. . . or for more information check CP 8532 on handy form, pages 2 and 3.

**Fine focusing adjustment of microscope is located low on instrument . . .**

inclined binocular body interchanges with graduated monocular draw tube; useful accessories cited

**Uses:** Microscopic investigations, photomicrography, micro-projection and other applications.

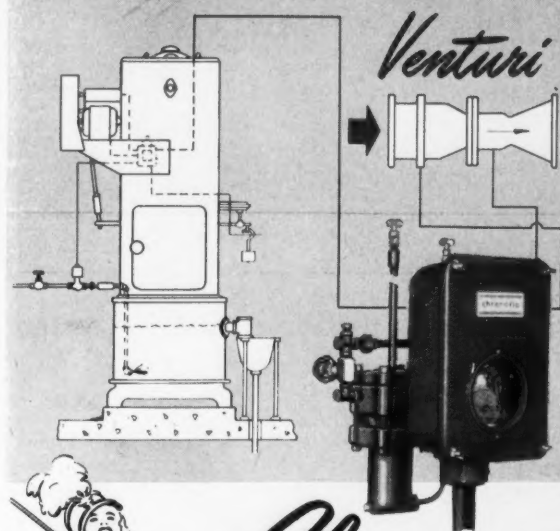
**Features:** Fine focusing adjustment is only 70 mm above table level. Inclined binocular body can be interchanged with graduated monocular draw tube for photomicrography, measuring, micro-projection and other research applications.

**Description:** Series E microscopes have a deeply curved arm that allows ample clearance for various specimens and full rotation of the microscope stage. The optical elements are coated for maximum light transmission. The interchangeable draw tube is adjustable and is graduated from 146 to 172 mm in tube length. Three types of substages are provided: for routine, specialized and critical research.

Recently developed microscope accessories include: condensers for phase contrast and dark field observation, disc polarizers and analyzers, a first-surface aluminized plano mirror for single reflections and ultraviolet illumination, and special slide holders and illuminators.

**Source:** Made by Bausch & Lomb Optical Company, Dept. CP, 635 St. Paul St., Rochester 2, N. Y. . . or for more information check CP 8533 on handy form, pages 2 and 3.

## For Automatic Proportional Control



# Chronoflo

**KEEPS THE  
CADENCE!**

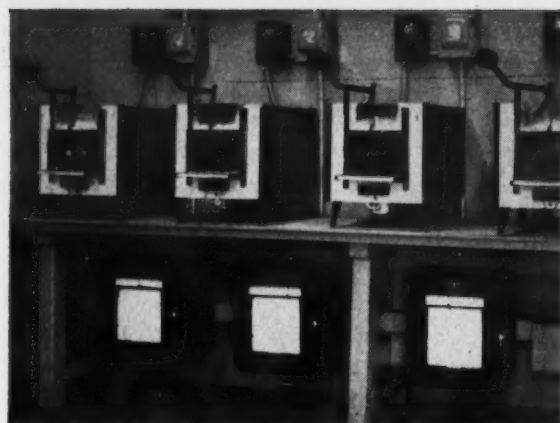
When flows of liquids and dry materials must be kept proportionally in step, put Builders Chronoflo on the job. As shown

in the diagram, this reliable control automatically paces the dry material feeder to deliver at the correct rate in proportion to the flow through the differential producer. Builders Chronoflo responds quickly and reliably to even the slightest change in the liquid flow. The complete installation—the Venturi Tube or Orifice Plate, the Chronoflo Transmitter, and the Omega Universal Feeder—is backed by Builders . . . a Company that has specialized in metering and controlling flow for over 55 years and with whom excellence in design and manufacture has been a tradition since 1820. For Bulletins and complete information, address Builders-Providence, Inc. (Division of Builders Iron Foundry), 387 Harris Ave., Providence 1, R. I.

**BUILDERS** makes a complete line of flow meters and controllers for liquids, steam, air, gas, and dry materials . . . mechanical and differential . . . including The Venturi Meter and Chlorinizers (chlorine gas feeders).

**BUILDERS PROVIDENCE**  
*Instruments*

When inquiring check CP 8534 on handy form, pgs. 2-3

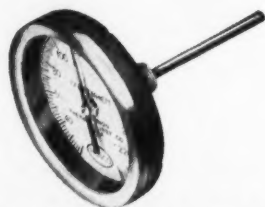


### MICROMAX INSTRUMENT RAN CONTINUOUSLY FOR OVER 3 YEARS

The Chapman Valve Manufacturing Company of Indian Orchard, Mass., found they can count on years of continuous service from their Micromax Pyrometers, when it is needed. And such performance of course helps prove the dependable work done by the entire process or operation. If you'd like more information about the instrument, ask for Catalog N-33A.



When inquiring check CP 8535 on handy form, pgs. 2-3



## PRINCO "EASY-SETTING" DIAL THERMOMETERS

- 5 Standard Ranges — Fahrenheit or Centigrade
- "Easy-Access" Cases for Quick Setting
- Simplified Dial and Pointer Adjustment
- Rugged, Accurate, Bimetallic Unit

"Easy-Access" cases permit all adjustments to be made from the front, "on the job!"

Two case types: "Quick-Opening," with threaded frame; "Moisture-Proof," with bolted frame.

4" dial, 5 standard ranges, Fahrenheit or equivalent Centigrade, covering —100° to +850° F., or —75° to +450° C.

Stainless Steel stem in 4 standard lengths: 4", 6", 9" and 12". Separable sockets available. Write for illustrated folder.

**PRECISION THERMOMETER & INSTRUMENT CO.**

INSTRUMENTS **PRINCO** FOR INDUSTRY

1404 Brandywine Street, Philadelphia 30, Pa.  
In Canada: PEACOCK BROTHERS Limited

When inquiring check CP 8536 on handy form, pgs. 2-3

## PROCESS INSTRUMENTATION

### Prevents unexpected plugging of intake water screens . . .

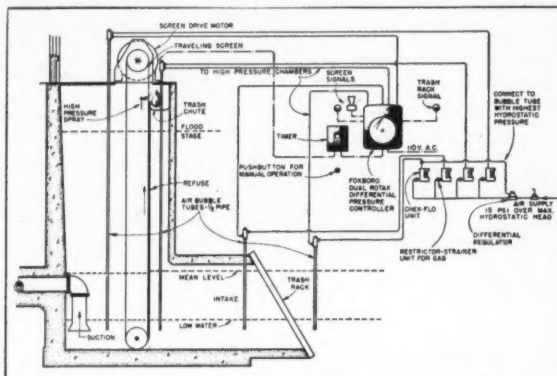
control system is based on differential water levels across traveling screen and across trash rack

**Uses:** Continuously records the differential water levels (caused by plugging with trash) across traveling screens and across trash racks of water intakes; automatically controls movement of traveling screens past spray cleaners for optimum removal of trash, and lights a light when trash racks become plugged.

**Features:** Prevents the unexpected plugging of intake water screens that can cause temporary plant shut downs and costly maintenance. Assures clean screens which are essential to the continuous supply of plant cooling water.

Measurement of level differentials, and ultimate control are unaffected by variations in water level at the intake.

**Description:** Figure illustrates the automatic traveling screen and trash rack control system. When a predetermined differential level across the traveling screen is reached, the controller-recorder automatically starts an electric timer which operates the screen drive



Schematic diagram of traveling screen and trash rack control system

motor and the high pressure spray pump. (This setting is readily made from the front of the instrument.) Timer insures sufficient duration of cleaning cycle to carry the plugged portions of the screen past the high pressure sprays and the trash chute. This prevents any possibility of trash drying on the screen and eventually falling back into the water. At the end of the cleaning cycle, if the differential level has returned to normal, the timer automatically stops the screen drive motor and simultaneously shuts down the high pressure spray pump.

If for any reason the cleaning cycle does not reduce the differential level across the screen, the screen drive motor and pump motor continue to run. At the same time, the screen signal is lighted to indicate continued screen cleaning.

Despite cleaning action, if the differential level continues to increase to a pre-set maximum value, an electric horn is sounded to warn of serious overload on the screen. When corrective action reduces the level difference, the horn is turned off; when the level is returned to normal, the cleaning action stops.

Emergency manual screen travel operation is provided for by terminals in the instrument to which a push button may be connected. Pushing button energizes timer and starts normal cleaning operation. This is



## AUTOMATICALLY SAVES MONEY— MATERIAL LABOR TIME



### *Lumenite* Milk-Level Controls

prevents overflow of tanks, vats, boilers etc. and  
overflow loss; avoids damage to boilers and  
kettles, etc. by preventing burning dry.

Operates by electronics: Less than 1 V. —  
1/100,000 Amp.

Temperature changes or extremes do not  
affect action.

Completely sanitary — easily sterilized.

Absolutely accurate.

Needs no attention.

Whatever your problem there is a Lu-  
menite Electronic Liquid Level Control to  
solve it. Write us for details.

TO  
PUMP  
MOTORS—  
MOTORIZED  
VALVES—  
SIGNAL  
BELLS &  
LIGHTS—  
Etc.

## Lumenite Electronic Company

ENGINEERS • DESIGNERS • MANUFACTURERS  
407 S. Dearborn Street Chicago 5, Ill

When inquiring check CP 8537 on handy form, pgs. 2-3



- FOR GAUGING LIQUIDS OF ALL KINDS
- 100% AUTOMATIC
- APPROVED BY UNDERWRITERS' LABORATORIES

LIQUIDOMETER  
*Tank Gauge*

WRITE FOR COMPLETE DETAILS

**THE LIQUIDOMETER CORP**  
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring check CP 8538 on handy form, pgs. 2-3

## PROCESS INSTRUMENTATION

handy for inspection of the traveling screen and its operation whenever desired.

Second element in this control system measures and records the differential level across the trash rack. Any plugging here, causing a pre-set maximum level differential, lights a trash rack signal to warn responsible attendants.

System consists of two components: 1) a dual-element (if trash rack record and signal are desired) recording differential Rotax controller, complete with air supply differential regulator and Chek-Flo restriction units for the bubble tubes. 2) An electric screen travel timer is included.

Source: System is a product of The Foxboro Company, Dept. CP, Foxboro, Mass. . . or for more information check CP 8539 on handy form, pages 2 and 3.

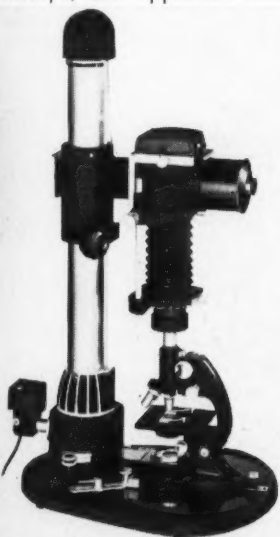
### Photomicrography only one use of optical apparatus . . .

three basic units of assembly may be combined for a wealth of purposes

Uses: For photomicrography; photomacrography; micro-projection; laboratory, clinical, and general photography; photocopying; microfilming; x-ray photocopying; and photo-enlarging.

Features: Basic units (light source, camera, and vertical column) are available either as one assembly, or individually for combination with existing lab equipment.

Description: Designed for use with any standard microscope, the apparatus comprises three units: 1)



Photomicrographic application of apparatus

base with permanently aligned built-in light source operating on Koehler principle (balanced at 3200 K for color work), with intensity control maintaining constant color temperature and built-in color filters; 2) self-aligning reflex camera with precision focusing device (for use with 120 roll-film, 2 1/4 x 3 1/4" cut or pack film, and standard 35 mm film), automatic shutter (1 sec to 1/200

sec), and attached photoelectric exposure meter; and 3) vertical column assembly with counterbalanced elevating device for camera. Accessories added to basic assembly convert the device for its many specific applications.

Source: Silge & Kuhne, Dept. CP, Box CO, 153 Kearney St., San Francisco 8, Calif. . . or for more information check CP 8540 on handy form, pages 2 and 3.

# A SAFEGUARD FOR COMBUSTION

*that speaks its mind!*

SPECIFY FLAME-OTROL—for safe and efficient operation of all types of oil and gas fired burners for furnaces, ovens, boilers, kilns and other heating equipment. It speaks its mind through colored light signals to keep you constantly informed of all phases of its service—from automatic self-proving safe start to safe shut-off at the slightest indication of improper operation. For combustion safety—specify the new Wheelco 1300 FLAME-OTROL, a compact *completely engineered* package providing more safety, economy and uninterrupted operation than any other combustion safeguard on the market.

*get all these benefits in one compact unit!*

Instantaneous protection—

**plus** Waiting period not subject to human error—

**plus** Shut down or repeat of "lighting-off" cycle at operator's discretion—

**plus** Automatic check of all internal components to insure safe "lighting-off"—

**plus** Selective and adjustable timing programs for Ignition cycles, purging and pre-ventilation—

**plus** Constant visual indication of burner system operation—

**plus** Completely engineered package for economy of cost and installation—

Electronic circuit

Automatic tube warm-up

Reset button

Safe-start component check

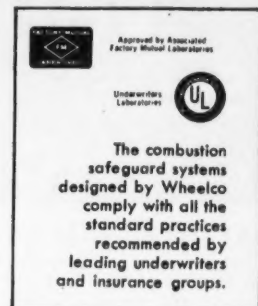
Easily performed with 7 interchangeable plug-in units

Built-in signalling system

Built-in push-button start eliminating external installation

All operations protected against all hazards created by sticking relays.

Write for Bulletin F2-2, Wheelco Instruments Company, 841 W. Harrison Street, Chicago 7, Illinois



Flame-eye



Flame-red



Get Wheelco instrumentality—in combustion safeguards, recording, indicating and controlling instruments.

# wheelco electronic controls

When inquiring check CP 8541 on handy form, pages 2-3

Use Self-Dumping Containers



**SIMPLE — SAFE — SPEEDY  
MATERIAL HANDLING**

**Step Up PRODUCTION 50%  
WITH  
ROURA  
Stainless Steel  
Self-Dumping HOPPERS**

### EASY TO CLEAN and TO KEEP CLEAN

Especially designed for use in the Chemical Industry, these new ROURA STAINLESS STEEL Self-Dumping Hoppers are simple to operate. They are ideal for quick, safe and economical handling of corrosive materials — whether wet or dry, hot or cold. Labor and Time costs can be cut 50% — only one man is needed for distributing and unloading — and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Ford, Champion Porcelain, General Electric, National Carbon, International Harvester, etc.

By a simple lift of the exclusive release handle the ROURA HOPPER dumps, rights, and locks itself securely. Sizes— $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$  and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials—conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

**Reduce FATIGUE** Only ROURA Has the Exclusive Instant Release (Patented) Handle

Write today for detailed brochure, "You Can  
Save 50% Labor-Time."

**ROURA IRON WORKS, Inc.**  
1413 Woodland Ave. Detroit 11, Mich.

When inquiring check CP 8542 on handy form, pgs. 2-3

Page 50

## Carry Ton Loads on Gas-powered Truck At Speeds to 20 mph

**Four-cylinder engine is governor controlled; truck  
has pneumatic or cushion tires**

**USES:** For rapid transfer of large and small unit loads inside and outside plants, and in loading, unloading and warehousing operations.

**Features:** Generous loading space of 21 sq. ft. Carries any miscellaneous total load up to a ton at speeds up to 20 mph. Equipped with Crosley 4-cylinder engine.

Its compact arrangement saves space. Besides the engine, the transmission, differential and hydraulic airplane type brakes are all located inside rugged base frame and protected by heavy steel tie bars. Engine starts electrically, no cranking.

When operator leaves seat, parking brake is mechanically applied. Transmission has three speeds forward; one reverse. Truck has turning radius of 72". Can be used as trailer train tractor.

**Description:** Capacity 2000 lb. Frame is reinforced, all-steel welded. Wheelbase is 67". Two wheels drive through an automotive type differential. Tires are 4 x 8", pneumatic or cushion. Axle is tubular. Wheels have Timken roller bearings. Height from floor to platform is 19- $\frac{1}{2}$ ". Overall length 98- $\frac{1}{2}$ ".

### Unloading tank cars of acid need not be dangerous

Equipment and procedures for handling 75% phosphoric acid in tank car quantities are described in 8-page, informative pamphlet. In addition to specifications for tanks, pumps, and pipes, contents include step-by-step explanations of several methods of unloading phosphoric acid cars, from spotting to preparing car for return. Sensible safety precautions to protect personnel from acid burns are stressed. "Handling of 75% Phosphoric Acid in Tank Car Quantities" is issued by Monsanto Chemical Company, Dept. CP, 1700 S. 2nd St., St. Louis 4, Mo. When inquiring specify CP 8544 on handy form, pages 2 and 3.

### Attach clamps to fork truck, then pick-up, move, rotate and spot paper rolls . . .

hydraulically operated device turns at uniform speed through 90°; used on 3,000-5,000 lb trucks

**Uses:** Handling paper and other roll materials.

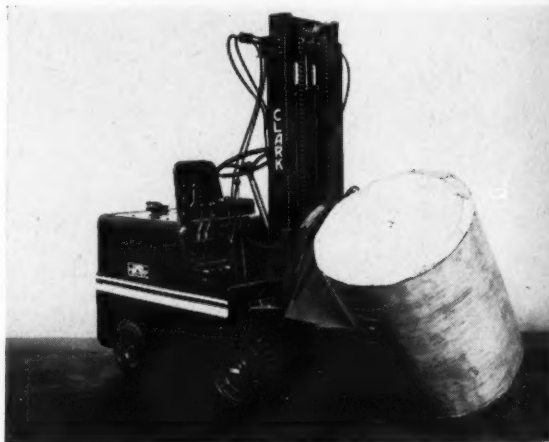
**Features:** Supplementary load accumulator, hydraulically actuated, serves to prevent loss of clamping pressure.

**Description:** Rotating clamp may be used on all carloader model fork-lift trucks with standard rated capacities of 3000 to 5000 lbs. It has two basic actions. Rolls may be handled in either vertical or horizontal



One-ton gas powered truck has starter, hydraulic brakes

**Source:** Model GC 2-56 Totemaster is built by Lewis Shepard Products Inc., Dept. CP, 262 Walnut St., Watertown, Mass. . . . or for more information check CP 8543 on handy form, pages 2 and 3.



Roll handling clamp rotates through 90°

position, and changed from either position to the other. Roll can be rotated at a uniform speed through 90°. Both clamping and rotating actions are accomplished hydraulically.

Rubber-covered clamping arms are readily adjustable in three positions for handling loads of varying diameters. Device can be installed on a standard upright or "hi-lo" stack.

**Source:** Roll handling clamps for maker's line of

CHEMICAL PROCESSING

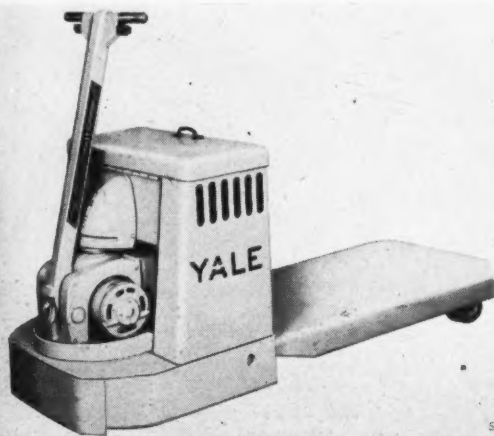
Material handling carloader trucks are made by Clark Equipment Co., (Industrial Truck Div.), Dept. CP, Battle Creek, Mich. . . . or for more information check CP 8545 on handy form, pages 2 and 3.

### Shortens length of platform trucks . . .

six inches saved in power unit adapts trucks to confined areas

**Uses:** Platform trucks for handling skids and skid bins, especially in such confined areas as freight cars, trucks, narrow aisles, and elevators.

**Features:** Six-inch saving in overall length of trucks is effected between battery box and front edge of truck



Six inches shorter than "walkie" models

— this fact differentiates it from the previous "walkie" models of the same type. Although space is saved, no other features inherent in this line of equipment have been sacrificed.

**Description:** New model is designated as the "Stubby" Worksaver; is available in 4000 and 6000 pound capacities. Platform lengths range from 36 to 72" in six-inch increments; widths are either 19, 24, or 26"; and heights may be specified as 6, 7, 9, 10, or 11".

Lifting is accomplished hydraulically. Controlled lowering — for cushioning action upon descent of load — is possible with truck's solenoid-operated valve. Additional information on trucks is given in maker's Bul. P1206.

**Source:** Product of The Yale & Towne Manufacturing Company, Dept. CP, Philadelphia, Pa. . . . or for more information check CP 8546 on handy form, pages 2 and 3.

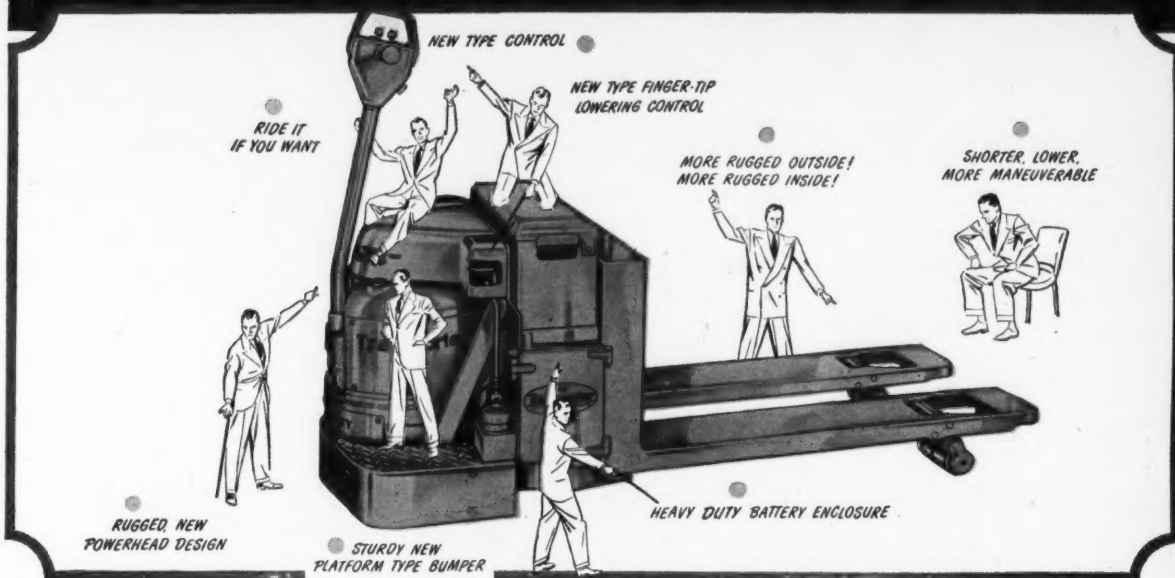
### Bulletin shows full line of condensers, compressors

Complete up-to-date performance data on full line of compressors and condensers is presented in 60-page bulletin. Air-cooled units from 1/4 to 3 hp, water-cooled units from 1/3 to 10 hp, and combination air-and-water-cooled units from 1/2 to 3 hp are illustrated. Contains detailed specifications, dimensions, and revised data needed for proper selection of units for cooling, refrigerating, and air conditioning. Superseding previous company data as of May, 1950, Bulletin 204-1 is issued by Mills Industries, Incorporated, Dept. CP, 4100 Fullerton Ave., Chicago 39, Ill. When inquiring specify CP 8547 on handy form, pages 2 and 3.

JULY, 1950

# ANNOUNCING THE NEW RUGGED "101" TRANSPORTER

Famous Service-Proved Electric Truck  
That Saved Industry Millions in Handling Costs ADDS ALL-NEW DESIGN  
AND PERFORMANCE FEATURES TO SAVE YOU MORE MONEY!



## Only "101" Transporter Has Them All

**1. RUGGED NEW POWERHEAD DESIGN.** Completely new cast drive housing for greater protection of all operating parts. **a:** Easily and quickly accessible for maintenance and adjustment. **b:** Final reduction fully enclosed gear drive. **c:** Brand new field tested motor, specially designed by Automatic engineers with 20% increased efficiency. **d:** Streamlined cast metal collector ring cover bolted securely to frame.

**2. SHORTER, LOWER, MORE MANEUVERABLE.**allet type trucks are approximately a foot shorter and the platform trucks are 5 1/2" shorter.

Increased maneuverability in tighter spaces, narrower aisles. All Transporters turn in their own length. New design affords better weight distribution, by increasing weight on drive wheel and decreasing weight on load wheels, with little increase in truck weight. Lower center of gravity gives more stability.

**3. STURDY NEW PLATFORM TYPE BUMPER.** Deep sectioned heavy duty platform type bumper with non-skid plate.

**4. HEAVY NEW BATTERY ENCLOSURE.** New enclosure completely encases battery for greater protection, has hinged doors and drop open lock for easy, quick battery changes.

**5. NEW TYPE CONTROL.** **a:** Control handle operates both speeds, low and high, forward and reverse, from any position including vertical. **b:** Two speed, forward and reverse buttons. Buttons are depressed 1/4 way for low speed, fully depressed for high speed. **c:** Improved safety handle. Broader hand guard and new flanges on grip for positive protection of hand and fingers.

**6. NEW TYPE FINGER-TIP LOWERING CONTROL.** Smooth, positive action. Operator controls speed of lowering action with touch of his finger. Lever enclosed for protection.

**7. MORE RUGGED OUTSIDE—MORE RUGGED INSIDE.** In design, engineering and construction, the new "101" Transporter has an overall ruggedness that pays off in hard usage, long service, minimum parts replacement.

### FREE BOOKLET

Let us send you a really revealing booklet: "How to Make Your Material Handling Pay Dividends." It shows how you can cut your handling costs 50% to 75% . . . and with it, you get complete information on the New "101" Transporter features. Mail coupon.

More rugged outside and inside, now New "101" Transporter is even more efficient than the famous service-tested electric truck that's saving industry millions of dollars.

Look over the new features highlighted on this page. They represent advances that mean better performance, less maintenance, lower operating costs . . . extra savings in smooth, trouble-free handling.

In ability to lift, move and deposit up to 6,000 pound loads, "101" Transporter conserves energy, banishes back-breaking fatigue, is truly a worker's dream come true, management's answer to biggest savings at lowest cost.

Mail the coupon . . . and we will send you full particulars about the new features of "101" Transporter and how they can slice plenty off the 36% material handling cost that goes into every production dollar spent.



Trade Automatic Mark

41 West 87th Street  
Dept. K-5 Chicago 20, Ill.

Please send me complete facts about your new "101" TRANSPORTER, with free booklet: "How to Make Your Material Handling Pay Dividends."

Company Name.....

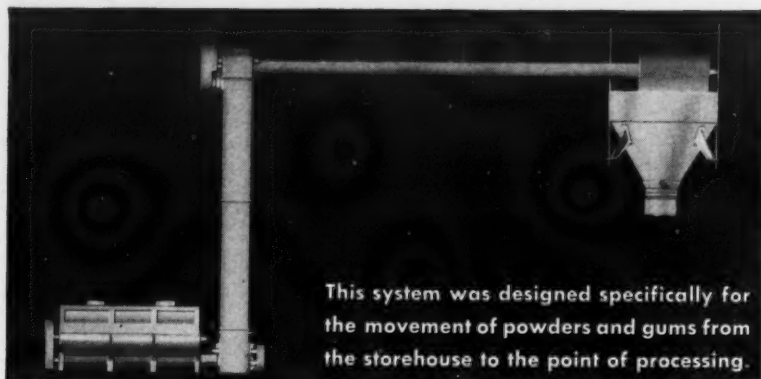
By.....Title.....

Street Address.....

City.....Zone.....State.....

When inquiring check CP 8548 on handy form, pgs. 2-3

## READ SOLVES MATERIAL HANDLING PROBLEM

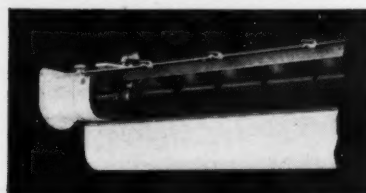


This system was designed specifically for the movement of powders and gums from the storehouse to the point of processing.

The above Read Material Handling System was engineered and built for a New York chemical company that manufactures adhesives.



PLAIN DUMP BIN



SCREW CONVEYOR

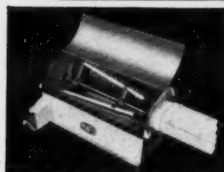


BUCKET ELEVATOR

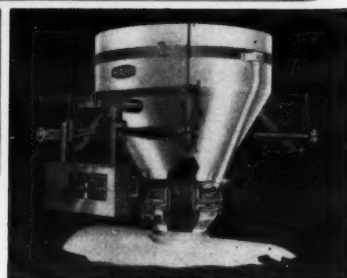
Complete Read Material Handling Systems are "tailored" to meet your particular material and plant requirements. Each system is carefully designed with an eye to lowering processing costs by preventing the loss of material in handling and increasing the efficiency of your overall operation.

In addition, each unit in a Read System is designed and constructed for easy accessibility and cleaning — your assurance of maximum equipment sanitation in your plant.

For a material handling system tailored to solve your particular problems, contact Read. One of our engineers will be glad to study your plant operation and make recommendations without obligation.



CONE SIFTER



WEIGH HOPPER

# READ

**READ MACHINERY DIVISION**  
of The Standard Stoker Company, Inc.  
YORK 7, PENNSYLVANIA

When inquiring check CP 8549 on handy form, pgs. 2-3

## MATERIAL HANDLING

**Reduce lifting mechanism friction in fork trucks with sealed rollers . . .**

mount on each side of secondary hoist frame; reduce wear; do not drip lubricant

**Uses:** For loading, unloading, tiering and spotting loads up to 4000 lb.

**Features:** Telescoping single-cylinder, low-pressure, double-action hydraulic system in center of telescoping uprights. Friction between this secondary hoist and the primary upright column is reduced to a minimum by 6 anti-friction rollers, serving as bearings. Rollers, mounted on each side of the secondary hoist frame, travel within the inner flanges of the primary column. They are sealed, self-lubricating.

High location of double-tilt levers stabilizes mechanism for high tiering, with inner uprights extended. Lift cylinder is above vision point when load is elevated.

**Description:** Maximum capacity is 4,000 lb. Truck lifts to a base height of 130" in 26 seconds. Going up unloaded, fork attains full 130" height in 15 seconds, and lowers a capacity load from same height in 16 seconds. Travel speed on straight-away with full load is 5 1/2 mph. Truck's upright column is hydraulically tilted 5 degrees forward from vertical in 2 seconds; 12 degrees backward from vertical in 4 seconds. Truck's overall length with 36" fork is 116"; width 41"; height with uprights telescoped, 83". Turning radius in intersecting aisles is 74"; in right-angle aisles, 134".

Wide gauge rear or trailing axle provides extra stability for truck and load. Caster-type steering wheels on horizontal pivot bearing and cushion

rubber tires provide maximum angle of steer. Truck is of automotive, center-control type.

Medium weight of truck, 7600 lb., permits floor rating capacity of only 50 to 60% that required for many other heavy-duty fork trucks.

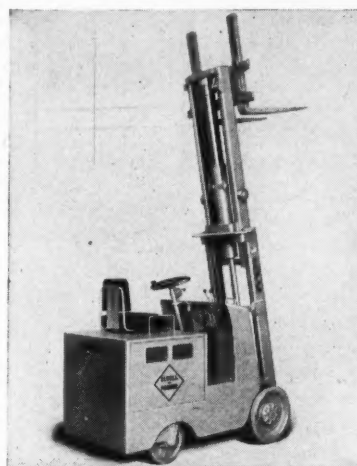
**Source:** Four-thousand-pound electric fork lift truck is built by Elwell-Parker Electric Co., Dept. CP, 4205 St. Clair Ave., Cleveland 3, Ohio . . . or for more information check CP 8550 on handy form, pages 2 and 3.

**Precise pick-up, dumping easy with hydraulically controlled shovel . . .**

tractor unit's 1/2 yd bucket has full dumping clearance of 91"; full visibility

**Uses:** For digging, leveling, loading, backfilling, transporting, filling trucks and handling bulk materials, both inside and outside of plant.

**Features:** Full-reversing transmission with four for-



2-ton truck has rapid 130" lift

Here's one  
**PROFITABLE  
MILK RUN!**



## BUSCHMAN CABLE TROLLEY CONVEYORS

are a low cost easily installed profit boon to food process plants. A mid-western dairy conveys milk cans from sterilization to filling stations or storage — freeing floor space and utilizing unused ceiling space. Can denting is reduced, sanitation increased while trucks and other handling devices are eliminated.

To reduce handling and increase profits in your plant — investigate BUSCHMAN "UNIVERSAL" Trolley Conveyors. Write for Bulletin #41.

**Buschman  
Conveyors**

THE E. W. BUSCHMAN CO., INC.

Spring Grove & Clifton Aves.

Cincinnati 32, Ohio

Clifton at Winton Place

Cincinnati 32, Ohio

When inquiring check CP 8551 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## MATERIAL HANDLING

ward and four fast reverse speeds, coupled with forward-reverse control which is separate from regular gear shift. This system assures speedy shifting into reverse and speed in reverse.



Tractor shovel has hydraulic brakes

**Description:** Model HE has  $\frac{1}{2}$  yd. bucket capacity. Full dumping clearance of 91" contributes to easy loading of trucks. Dumps and closes bucket hydraulically. Action may be controlled so as to be slow or almost instantaneous.

**Source:** Model HE tractor-shovel is built by Frank G. Hough Co., Dept. CP, 820 Sunnyside Ave., Libertyville, Ill. . . . or for more information check CP 8552 on handy form, pages 2 and 3.

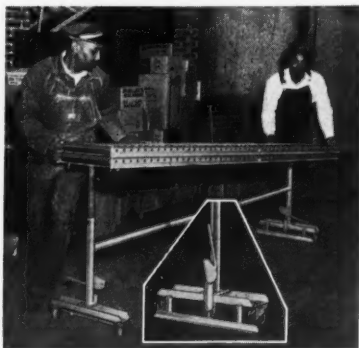
### Contact of more floor area assures locking conveyors securely in place . . .

angle iron lock bar raises casters; 3-point contact with caster carriage prevents wobble

**Uses:** Holds portable conveyors securely in place by providing wide locking contact with floor.

**Features:** More secure than merely immobilizing one caster or anchoring one corner. When lock is taken out of service, it is held 1" above floor free of obstructions.

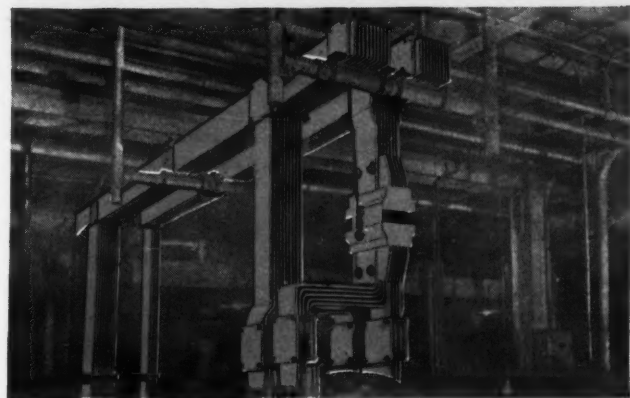
**Description:** In locked position, angle iron floor bar raises casters  $\frac{1}{16}$ " off floor and locks entire end of unit in position. Three point contact between floor bar and caster carriage, preventing wobble and twisting, is provided by spring cylinder and two vertical pins welded to floor bar near each end. Release of cam engages casters for moving unit and takes lock out of contact with floor. (See illustration.)



Lock has wide floor contact

**Source:** "Pelican" floor lock is made by Metzgar Corp., Dept. CP, 449 Douglas St. N. W., Grand Rapids, Mich. . . . or for more information check CP 8553 on handy form, pages 2 and 3.

JULY, 1950



**B**ECAUSE of its superior electrical and heat conductivity, Revere Bus Bar is your logical choice for bus connections, switch and panel boards, circuit breakers and power feed systems in general. No other commercial metal approaches electrolytic copper in its ability to carry electricity. Having the highest thermal conductivity of any commercial metal, copper offers the greatest ease of cooling. Furthermore, joints of high electrical conductivity are readily made by soldering, brazing, or bolting. Because of its low coefficient of thermal expansion, copper bus bar minimizes design difficulties in providing for changes in length due to temperature changes. An added advantage: high scrap value of the metal when plant changes necessitate a new system of buses. For information on Revere Bus Bar, consult the nearest Revere Sales Office.

# REVERE

**COPPER AND BRASS INCORPORATED**

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere.

When inquiring check CP 8554 on handy form, pgs. 2-3

# HAPMAN

## TUBULAR CHAIN OR CABLE CONVEYORS

FOR  
FLOWABLE  
MATERIALS  
U.S. Pat. & Pats. Pend.

These photos show how the DIFFICULT conveyor problem at this pottery plant was best solved by Hapman Conveyors. Seven kinds of ceramic raw materials are handled without intermixing. They are measured into hopper in lower photo and carried on 2 planes up 2 floors into Blunger room. Positive-discharge Hapman Vibrators used with rotary valves insure accurate volumetric discharge into any one of the 6 Blungers. Note small wall and floor openings and the minimum supports required.



**SOLVED!** A DIFFICULT CONVEYING PROBLEM

Here one conveyor must handle and keep segregated 7 types of material. The conveyor must be dust-tight and operate in more than one plane and direction without transfer points. There is only limited space for clearance and supports. Only Hapman Rubber-Flight Chain Conveyor was able to meet all these DIFFICULT requirements at the budgeted cost.

When confronted with difficult conveying problems, you'll probably find the answer in Hapman Conveyors. They are handling most types of flowable materials under one or more of the 45 difficult conditions which only completely "job-engineered" Hapman Conveyors meet successfully. Send for the Hapman catalog showing these materials and the methods used to handle them.

**HAPMAN CONVEYORS, Div.** 19209-d W. DAVISON  
HAPMAN-DUTTON COMPANY DETROIT 23, MICH.

When inquiring check CP 8555 on handy form, pgs. 2-3

## So Many Things You Can Do Better In A Shriver Filter Press!

RECOVER SOLIDS  
CLARIFY LIQUIDS  
WASH AND EXTRACT  
DRY FILTER CAKE  
REDISSOLVE CAKE  
MELT CAKE  
THICKEN SLURRY

At Any Pressure and Temperature  
With Minimum Operating Cost

This Shriver Filtration Book tells why and how. It's informative and instructive. Get a copy.



**T. SHRIVER & COMPANY, Inc.,** 846 Hamilton St., Harrison, N. J.

When inquiring check CP 8556 on handy form, pgs. 2-3

## MATERIAL HANDLING

**Same forks handle pallets, non-palletized drums . . .**

truck's right fork shifts to admit drums; notches in forks support drums under rolling rings

**Uses:** Fork-lift trucks for all ordinary pallet handling operations, plus handling of steel drums without pallets.

**Features:** Handling drums without pallets, in addition to usual pallet handling, is accomplished with same forks.

**Description:** Two sets of concave notches on inside edges of forks fit circumferences of drums under rolling rings. Right-hand fork is moved laterally by a hydrau-



Same forks handle pallets

lic cylinder; right-hand fork is anchored in stationary position. Two drums can be grabbed by shifting the right fork, sliding forks around drums and under their rolling rings, and then hydraulically closing. Forks are illustrated here on Model LT-60 lift trucks; however, they can be furnished on maker's other models.

For pallet handling, forks are used in normal manner.

**Source:** Lift trucks with hydraulic drum forks are a product of Towmotor Corporation, Dept. CP, 1226 E. 152nd St., Cleveland 10, O. . . or for more information check CP 8557 on handy form, pages 2 and 3.

**Boosts materials from floor-to-floor . . .**

belt conveyor is movable; widths to 36", lengths to 24'

**Uses:** Recommended as a floor-to-floor conveyor and stacker.

**Features:** Mobile belt conveyor is available with belts 6 to 36" wide, and 12, 15, 18, 20 and 24' long.

**Description:** Either slider or roller bed construction is available in this line of conveyors. Various capacity motors are available for varied load-carrying requirements. Unit may be furnished with power-driven tail feeder, wheel or gravity section, or nosed-over delivery. Positive screw-jacks in raising mechanism incorporate



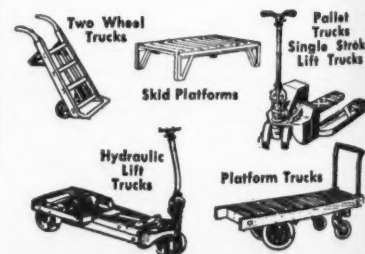
Be "COST-WISE"!  
**PALLETIZE**



You'll handle a greater variety of pallets easier and faster with a WELD-BILT Pallet Truck! The slim, sturdy forks, with their greased-for-life ball bearing wheels, are designed to enter all types of single or double-faced pallets.

Some of the features that prove WELD-BILT extra value include: front wheel equalizer, accelerator type lowering pedal, multi-stroke hydraulic lift, "anti-kick-back" safety handle, instant-free handle release, shockproof mounting of hydraulic unit—and many others. They help you to time and labor savings, and promise longer service.

Write today for complete details on WELD-BILT Pallet Trucks, in capacities of 2,000, 4,000 and 6,000 lbs. . . for "Cost-Wise" Palletizing. Bulletin 311.



**WEST BEND EQUIPMENT CORPORATION**  
MATERIALS HANDLING ENGINEERS

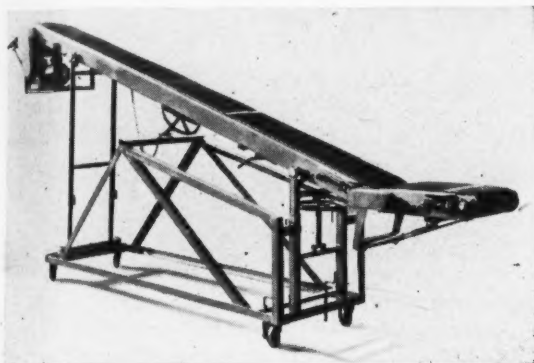
319 Water Street, West Bend, Wis.

When inquiring check CP 8558 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## MATERIAL HANDLING

safety features which allow conveyor to be locked in any desired position. Under carriage is constructed of heavy angle iron. Conveyor rides on 2 stationary and 2 swivel 5" casters. Two floor locks are provided to maintain desired location.



Conveyor rides on 2 stationary and 2 swivel 5" casters

Source: Product of the Sage Equipment Company, Dept. CP, 30 Essex St., Buffalo 13, N. Y. . . . or for more information check CP 8559 on handy form, pages 2 and 3.

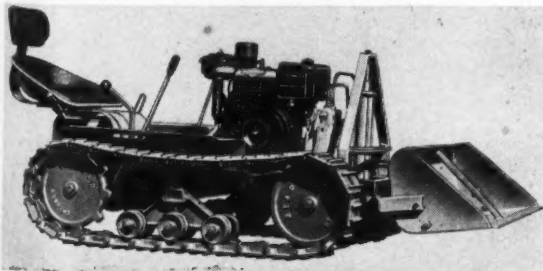
### Scoop, carry, dump, backfill with baby bulldozer . . .

unit easily towed to work in its own special "tote wagon"; weighs only 800 lb

Uses: For grading, excavating, backfilling, towing and pushing. Designed for service in close quarters as well as in open areas.

Features: Easily controlled for precise operation. Weighs only 800 lb, but has normal scoop load capacity of 560 lb of wet sand (4-1/2 cu ft). Form-fit seat with foam rubber lining is adjustable.

Description: Complete unit embodies crawler shoes, frame, seat, and 5-hp air-cooled motor. May be fur-



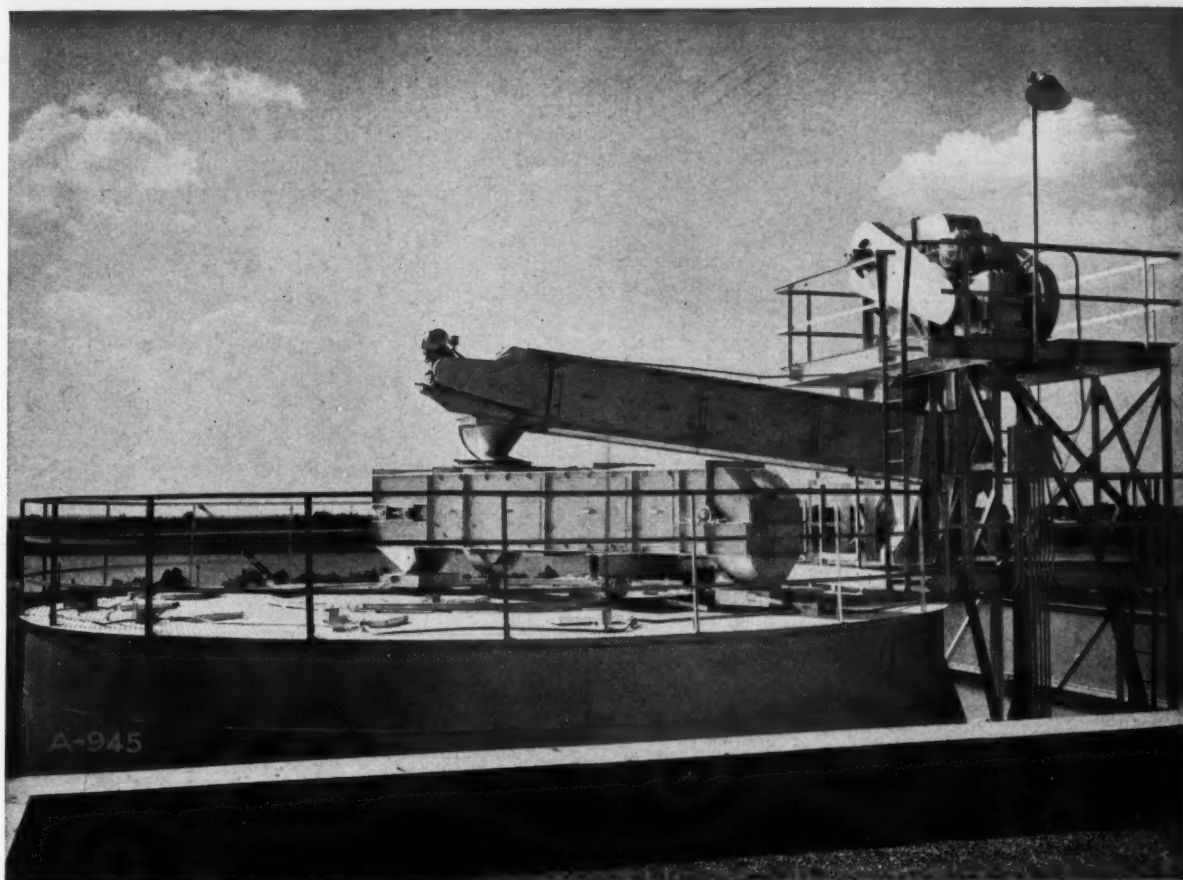
Baby bulldozer has 560-lb scoop capacity

nished with bucket lift, dozer blade or snow blade assembly. All these include lifting yoke, lifting stirrup, hydraulic pump, cylinder and control valve.

Hydraulic cylinder has 2000-lb lifting capacity. Pump is gear type with V-belt drive. Width of treads is 7"; bearing area on ground is 532 sq in; draw bar pull is 800 lb. Speed range is 1/2 to 6 mph, forward and reverse. Machine pivots on either track within 8' circle.

Source: Baby bulldozer is built by Mead Specialties Co., Inc., Dept. CP, 4114 N. Knox Ave., Chicago 41, Ill. . . . or for more information check CP 8560 on handy form, pages 2 and 3.

JULY, 1950



## TRIPLE PLAY—Unassisted

Unloading bulk chemicals from cars with minimum manual operation—conveying them horizontally and elevating—distributing to any designated one of fifteen silo sections—These were the basic elements of this complex materials handling problem. Protection against weather was essential . . . and facility for quick reclaiming. Low handling cost per ton was a must. A single engineered S-A bulk handling system proved to be the perfect answer for efficiency and economy.

In S-A's complete line of conveying equipment—plus 50 years' experience—S-A engineers have the "tools" to develop all types of bulk materials handling systems at minimum cost. Whatever your needs and materials may be—it will pay you to get the recommendations of S-A engineers. A discussion does not obligate you. Write today!

**STEPHEN S-A DAMSON**

11 Ridgeway Avenue, Aurora, Illinois MFG. CO. Los Angeles, Calif. • Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

When inquiring check CP 8561 on handy form, pgs. 2-3

CITY OF DALLAS, TEXAS  
Municipal Water Purification Plant  
J.G. Bartholomew Co., Gen. Contractor  
From an S-A car unloader, a 48-foot long REDLER conveyor carries four different materials under the silo to the base of a 67-foot high loop-boot REDLER elevator. This unit elevates to top of silo where a pivoted REDLER conveyor on circular track discharges into fifteen storage compartments. Materials also can be diverted to a horizontal closed-circuit REDLER which moves them to the building where chemicals, stored in tanks, feed directly to the water purification process. Chemicals in silo are easily reclaimed and returned to the REDLER handling system. Most of the handling equipment is outdoors. Sealed REDLER casing keeps chemicals free from contamination, protects against weather and prevents waste by spillage.

## Which of These **LIFT GATES** Will Cut Your Delivery Expense the Most?

For 8 years, thousands of operators have cut costs up to 50% with "LIFT GATES". Anthony has several types of "Lift Gates" to make possible the most efficient, economical method of loading and unloading of all types of cargo on trucks and semi-trailers.

### ★ "GENERAL PURPOSE" TYPE

For quick, easy loading at curb, low dock and floor levels. Recommended for END loading at dock. "Levelized" lift keeps gate always horizontal to handle tall objects or loads on wheels, casters or rollers. Special non-slip surface. Choice of "SPRING" or Hydraulic Power closing.

### ★ "RAMP" TYPE

Popular for ground-level loading. Bulky objects easily push up low-angle permanent ramp for fast loading and unloading. Fast action "Levelizer". Special non-slip surface that doesn't impede loading by skids or hand truck. Choice of "SPRING" or Hydraulic Power closing.

### ★ "PICK UP" GATE

For 1/2 and 3/4 ton pick-up trucks. Twin hydraulic hoists lift up to 800 lb. loads. No cables, pulleys, cranks or chains. Operates from truck motor. Closes to act as a regular tailgate. Adds about 12% more pay load space. Phone or write for further information.

**ANTHONY  
LIFT GATE  
HYDRAULIC**  
T.M. REG. U.S. PAT. OFF.

**ANTHONY COMPANY, Dept. 401, Streator, Ill.**  
When inquiring check CP 8562 on handy form, pgs. 2-3

## GAIN SPACE. Palletize and Stack Materials

With

## MOTO-TRUC

MOTORIZED, BATTERY OPERATED

## HI-LIFT TRUCK

Up to 15"  
Shorter in  
Overall  
Length

Operates in **NARROWER AISLES**

THE CONTROL is unusually easy and simple. You get two speeds forward and two speeds reverse by a turn of the wrist on easy grip roller type handle. Push buttons in the ends of handle, control the hydraulic lift.

PATENTED Articulating Hinged Spring Unit holds drive wheel down for better traction.

OPERATOR SAFETY is most carefully protected by dead man controls and other proven safety features.

Write for Literature

PALLET TRUCKS  
HI-LIFT TRUCKS  
PLATFORM TRUCKS

**The MOTO-TRUC Co.**  
193 E. 59th Street  
CLEVELAND 3, OHIO.  
ORIGINATORS OF  
MOTORIZED HAND TRUCKS

When inquiring check CP 8563 on handy form, pgs. 2-3

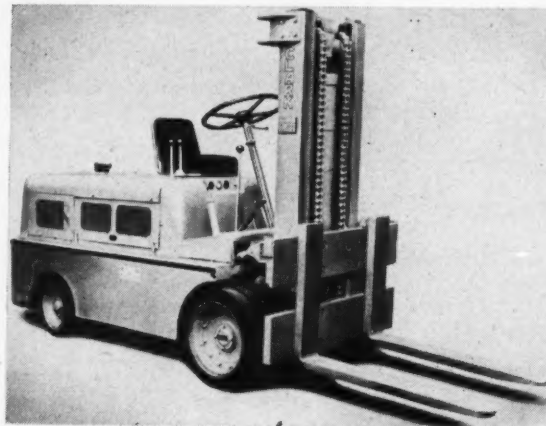
## MATERIAL HANDLING

### Magnetic repulsion drives truck . . .

unique drive eliminates conventional clutch and transmission; easier operation, less maintenance

**Uses:** For handling loads up to 5 tons, especially where unusual maneuverability and ease of operation are required.

**Features:** Dynatork drive transmits engine's electrical power through a magnetic field and across an air-gap (magnetic repulsion), eliminating need for any type of friction clutch. Conventional transmission is also eliminated and replaced by constant-mesh forward and reversing gearing.



5-ton truck turns easily in 88" aisle intersections

Pivoted steering-axle assembly increases stability by keeping all four wheels in constant contact with plant floor or ground.

Forward and reverse control lever is mounted on steering column. Truck's design eliminates stresses and strains characteristic of rigid frame mounting.

**Description:** Named Utilitrac-100, this 5-ton capacity fork-lift truck is gasoline powered. Motor is 6-cylinder Red Seal Continental industrial-type engine of 209 cu in displacement. It develops 50 brake hp at 1800 rpm. Overall length is 107"; wheelbase, 66"; overall width, 50 1/2"; outside turning radius, 104"; inside turning radius, 12". Truck turns readily in intersecting aisles of 88" width.

An inching pedal is located in position usually occupied by clutch pedal. Single gear shift lever controls low and high speeds. Driving operations are similar to an automobile.

**Source:** Utilitrac-100 is built by Clark Equipment Co., Industrial Truck Div., Dept. CP, Battle Creek, Mich. . . or for more information check CP 8564 on handy form, pages 2 and 3.

**Support 1/2 ton on aluminum conveyor sections weighing only 27 lb . . .**

design prevents rotation of bearing on shaft, eliminates binding under loads

**Uses:** Handle boxes, crates, kegs, light drums, cans with chimes, and many other objects.

**Features:** Aluminum rollers and frame make these conveyors especially suitable for outdoor service where rust is a threat to steel construction. Also, non-sparking



Handler tiers drum in storage.

NEW...

## ELWELL-PARKER Drum Handler

Speeds Work,  
Saves Space

You can transport and stack filled drums faster with this latest attachment for E-P fork trucks. By tiering drums without pallets, it will save your space. Also, this handler is ideal as a pallet loader—to assemble drums in multiples upon pallets which are then carried by other fork trucks or on trailers for tractor delivery.

Send For Data on this New Drum Handler.

**THE ELWELL-PARKER ELECTRIC CO.**

4017 St. Clair Avenue • Cleveland 3, Ohio

When inquiring check CP 8565 on handy form, pgs. 2-3

## Another Example of **Screw-Lift** Versatility



18 foot Screw-Lift (6" dia.) elevating lime dust to "Black Top" Mixer. Material is fed from hopper through 5 foot feeder and eliminates considerable hand labor. You, too, may have a material handling problem which a Hammond Screw-Lift may solve. Screw-Lifts handle any free flowing bulk material to processing machines or packagers or to storage and reclaim same. Write for Form No. M-500-2.

PATENTED

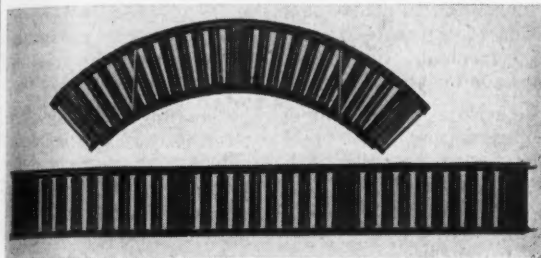
**Screw Conveyor Corporation**  
100 HOFFMAN ST. HAMMOND, IND.  
ENGINEERS PRODUCTS U.S. PAT. OFF.

When inquiring check CP 8566 on handy form, pgs. 2-3

## MATERIAL HANDLING

qualities are important in hazardous locations. Weight of 5' section, 12" width, is only 27 lb, yet it will support over half a ton.

**Description:** "Knitted-frame" construction and special roller assembly add strength and rigidity. Locked in-



All-aluminum conveyors resist rust, are non-sparking

ner cone, with free-running, hardened steel ball-bearings, prevents rotation of the bearing on the shaft and eliminates binding under loads.

Sections are made in 5, 8 and 10' lengths and 12 and 18" widths. Rollers project  $\frac{3}{8}$ " above side channel frame. Choice of four roller spacings is offered.

**Source:** Aluminum roller conveyors are built by Rapids-Standard Co., Inc., Dept. CP, Grand Rapids, Mich. . . or for more information check CP 8567 on handy form, pages 2 and 3.

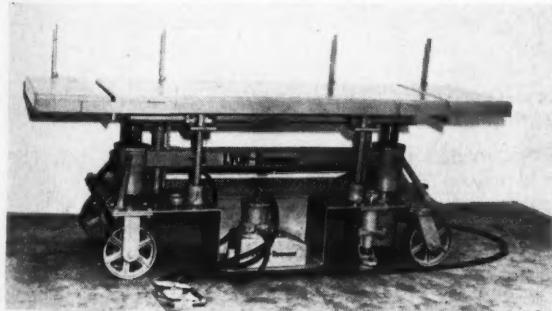
### Simple pedals control pump to elevate hydraulic feeding table . . .

steel is positioned level with press bed without cranking or other manual operation

**Uses:** Hydraulically operated feeding table for elevating sheet and strip steel to level of press bed. Load capacity is 6,000 lb.

**Features:** Compressed air motor driving hydraulic pump has simple controls, eliminating manual operation of table.

**Description:** Up to 6,000 lb of sheet or strip steel is elevated each time control pedal is pressed. To lower table, release pedal is pressed. Compressed air



Elevating feeding table has capacity of 6,000 lb

motor operates hydraulic pump that forces oil from reservoir into cylinders supporting table bed. Release pedal allows oil to flow back into reservoir. Table also has tilt top arrangement for use with inclined bed presses.

**Source:** Table and pumps are made by LYON-Raymond Corporation, Dept. CP, 5756 Madison St., Greene, N. Y. . . or for more information check CP 8568 on handy form, pages 2 and 3.

JULY, 1950



## MAN-HOURS TURN TO MAN-MINUTES

with TOWMOTOR Mass Handling

Production costs drop sharply in every plant when handling time is cut from man-hours to man-minutes! Carloads of raw materials are moved to storage in minutes . . . with Towmotor. Heaviest loads are smoothly handled in minutes . . . with Towmotor. Bulky unit-loads of finished products or raw materials are stacked high into overhead storage in minutes . . . with speedy Towmotor Mass Handling. In every phase of your plant's handling operations, Towmotor Mass Handling reduces man-hours, assuring spectacular payroll savings. Twelve Towmotor models cut handling time on loads from 1,500 to 15,000 lbs. Write for "Handling Materials Illustrated" to learn how you can reduce costly man-hours to thrifty man-minutes! TOWMOTOR CORPORATION, Div. 23, 1226 E. 152nd St., Cleveland 10, Ohio. Representatives in all principal cities in U. S. and Canada.



FORK LIFT TRUCKS and TRACTORS  
RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

HANDLES  
ANY TYPE  
MATERIAL

Ask to see the 30-minute Towmotor movie, "THE ONE MAN GANG." Shows how leading industries cut handling costs

When inquiring check CP 8569 on handy form, pages 2-3

# Flashes from the BEACON

WE'RE THINKING of something that hasn't a thing to do with what we manufacture for you or what you manufacture for the public. We're thinking of fishing. Fishing doesn't exactly pertain to our work or yours — except that after you've been fishing, especially if the fish are biting — you feel a whole lot more like settling down and getting a little work done. Besides, it's summer, that's reason enough.

WE THOUGHT about fishing last year too and Milford Waddell came out with a "Hints on Bass Fishing" article last July that proved so popular we had to reprint it and send it to fishermen everywhere. So this year — not waiting



"Pitch hell! Send somebody out here to get my leg down!"

a BEACON Original by David Hunt

to be asked — Waddell has prepared another illustrated article. Called "Let's Go Fishing," the article and pictures "review" latest fishing gear of all types, their uses, who makes them, and what have you. This one probably will be reprinted too. But you don't have to wait for reprints if you're already on the list to receive the BS&B BEACON — the "different" industrial magazine.

COMPANY publications have been called "special interest" pieces — and our "special interest" is interesting you, your secretary, your wife and kids, your barber — well, there just isn't anybody we don't want to interest. That's why we carry fiction, comment, reviews, a woman's page and a children's page besides the latest news on BS&B material handling and storage equipment.

ACTUALLY, the BEACON'S a time-saver too. Where else can you find (for free) a combination equipment digest and general-interest magazine? Never a dun for subscription fees . . . Nothing but some information and entertainment from us to you. And you have a chance to talk back. Our new RETURN FLASHES column is open to our readers to purr or spit at us as the fancy strikes them.

SOUND LIKE FUN? Then drop us a note on your company letterhead and your copy of the BEACON will start coming. Write to:

**BLACK, SIVALLS & BRYSON, INC.**  
Industrial and Public Relations Division  
Kemper Building, 720 Delaware  
Kansas City 6, Missouri

When inquiring check CP 8570 on handy form, pgs. 2-3

## New Literature

### Thermodynamic properties of chlorine neatly graphed

Of interest and value to research, development, design, and production engineers working with equipment using chlorine, an enthalpy-temperature diagram is offered which has units given in English system. Data expressed as Btu, psi, and degrees F can be used directly without conversion. Principal thermodynamic properties are presented in graph form on heavy-coated stock measuring 24" by 11". Chart gives heat content of liquid, of saturated gas, and of super-heated gas in temperature range of -40° F to 560° F, and in pressure range of 15 psi to 1100 psi, absolute.

No claim is made for extreme accuracy of data, which is regarded as sufficiently practical for most purposes of product, plant, or process design engineering. Copies of "Enthalpy-Temperature Diagram for Chlorine" plus 5-page explanatory article giving mathematical equations and formulas on which chart is based, and detailed instructions for use are available from the Diamond Alkali Company, Dept. CP, 300 Union Commerce Building, Cleveland 14, O. When inquiring specify CP 8571 on handy form, pages 2 and 3.

### Air pressures from 5-150 psi operate control valve

Solenoid-controlled, air-powered air valve is subject of 6-page bulletin. Solenoids operate on 8 volts; valve is actuated by air pressures from 5 psi to 150 psi. Included are wiring diagrams and dimensional drawings. Bulletin AU-250 is issued by The Bellows Company, Dept. CP, 222 W. Market St., Akron, O. When inquiring specify CP 8572 on handy form, pages 2 and 3.

### Non-corroding alloy used in lab clamps, holders

A non-ferrous die casting alloy which does not rust or corrode is the material used in holders, clamps, and supports for holding laboratory equipment and assemblies. Twenty-four-page, 2-color bulletin illustrates, describes, and specifies these devices. "Castaloy Laboratory Equipment", issued by the Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. When inquiring specify CP 8573 on handy form, pages 2 and 3.

### Lists properties and uses of citraconic anhydride

Covering most of the literature up to 1949, 20-page pamphlet on citraconic anhydride and some of its derivatives will be of interest to research chemists for its sections on reactions with amines, dienes, and alcohols. The chemical engineer and industrial chemist will be interested in its use for separating alcohols from non-alcohols, as well as in its possible use in the plastics field.

Citraconic anhydride is a white liquid of very high density and is easily handled. It reacts readily with hot water, and at room temperatures the resulting citraconic acid is very soluble and stable. The mixture, however, can be distilled to obtain water and citraconic anhydride. The anhydride reacts with primary amines to yield crystalline products. With secondary and tertiary amines, the prod-

ucts are not usually crystalline. It reacts with alcohols without a catalyst to form unstable half-esters. It reacts with conjugated double bond systems in the Diels-Alder reaction to form adducts which suggest uses in production of compounds with angular methyl groups, and in the separation of diene systems from ether moieties.

The most unique property of citraconic anhydride, however, is that because of its physical structure and arrangement, its reaction products tend to decompose to yield back citraconic anhydride. "Citraconic Anhydride" is issued by Smith-New York Company, Inc., Dept. CP, Freeport, Long Island, N. Y. When inquiring specify CP 8574 on handy form, pages 2 and 3.

### Control devices illustrated, specified and described

Line of industrial control devices and safeguards illustrated, described and specified in 63-page, 2-color catalog includes electric, pneumatic, and combined electric and pneumatic systems. Temperature, humidity, and pressure controllers; combustion safeguards and flame-detector units; control valves and motors; relays and switches; and process control specialties are comprehensively covered. Catalog 8303 is issued by Brown Instruments Division of the Minneapolis-Honeywell Regulator Company, Dept. CP, Wayne and Windrim Aves., Philadelphia 44, Pa. When inquiring specify CP 8575 on handy form, pages 2 and 3.

### Nickel and monel recommended for containing bromine

Eight-page booklet discussing suitable containers for bromine recommends use of nickel and monel drums. Publication contains reports on the studies of various groups of materials and data on testing methods as well as the results obtained. Included are photographs of specimens after exposure to bromine in different forms for periods of 118 to 124 days. "Materials for Bromine Containers", reprint of recent technical article by George S. Haines, is available from The International Nickel Company, Inc., Dept. CP, 67 Wall St., New York 5, N. Y. When inquiring specify CP 8576 on handy form, pages 2 and 3.

### Low-cost sizing unit screens both wet and dry material

Two-bearing, eccentric vibrating screen in low cost range is described in bulletin. Includes representative photographs and drawings. Available are suspension mounted and base mounted models in single to triple deck styles; uses vary from sizing to dewatering. Bulletin 350 may be obtained from Productive Equipment Corporation, Dept. CP, 2926 W. Lake St., Chicago 12, Ill. When inquiring specify CP 8577 on handy form, pages 2 and 3.

### Cabinet-type controllers need no extra instrument panels

Cabinet-type electronic indicators permit incorporation of auxiliary control units within their cases — eliminating need for extra instrument panels or housing. Space allotted to auxiliaries measures 13" high, 17 3/4" wide, and 8 1/2" deep.

Controllers measure, indicate, and ultimately control speed,

flow, pressure, static strain loads, volts, amperes, etc., when combined with suitable auxiliary devices. Primary sensing elements used with instrument produce electrical impulses — thermocouples, radiation detectors, resistance bulbs, etc. Cabinet-type controllers with various examples of control combinations are illustrated and described in Bulletin CAB-1, issued by the Wheelco Instruments Company, Dept. CP, Chicago 7, Ill. When inquiring specify CP 8578 on handy form, pages 2 and 3.

#### Details clarifiers for treatment of wastes

Circular collectors for clarification (sedimentation) and sludge collection in sewage treatment, industrial waste treatment, or water purification are detailed in 16-page, 2-color bulletin. Engineering data and specifications, comprehensive capacity tables, and numerous diagrams are included for 3 types of collectors. Bulletin has one page devoted to plunger sludge pumps for removal of settled sludges from collectors. Bulletin 4906, issued by Ralph B. Carter Company, Dept. CP, Atlantic St., Hackensack, N.J. When inquiring specify CP 8579 on handy form, pages 2 and 3.

#### Sheet packings handle gases, liquids, and abrasives

Specific types of sheet packing for liquids, gases, and abrasives are discussed in new, 4-page catalog. Publication lists specifications, outlines uses, and describes materials used in construction. Contents include cloth-inserted and asbestos sheet packing. Catalog 5000 supersedes previous catalog 5000 issued in 1947, and is available from The B. F. Goodrich Company, Dept. CP, Akron, O. When inquiring specify CP 8580 on handy form, pages 2 and 3.

#### NBS describes 11 methods for determining density

National Bureau of Standards has recently issued a circular which describes 11 methods for determining the density of solids and liquids. Included are hydrostatic-weighing, picnometer, flotation, hydrometer, falling-drop-balanced column, Boyle's law, electromagnetic, elastic-helix, ice-calorimeter, and volumetric methods. Bureau stresses importance of accurate, reproducible density determinations.

Circular C487, entitled "Density of Solids and Liquids", contains 29 large, double-column illustrated pages. Remit 20c direct to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C.

#### Selective lifting employed in hydraulic hand trucks

Colorful 8-page bulletin features a line of hydraulically operated hand lift trucks, including platform and pallet models for handling skids and pallets. Hydraulic system consists of a self-contained pump and ram — there are no oil lines. The multiple-stroke pump permits operator to select number of strokes he wants for either rapid or slow lifting of light or heavy loads. Standard models have lifting capacities to 5000 pounds, and lifting heights to 6". Larger capacities are available.

Bulletin covers dimensional specifications, construction features, and includes numerous diagrams and photos of these trucks. Bulletin 5031, issued by the Barrett-Cravens Company, Dept. CP, 4906 S. Western Blvd., Chicago 9, Ill. When inquiring specify CP 8581 on handy form, pages 2 and 3.

## Why shop around for piping equipment? CRANE has everything you need

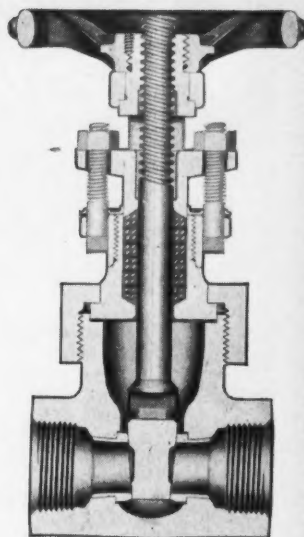
### MODERATELY PRICED SMALL STEEL VALVES

Fact is, these rugged 600-Pound Union Bonnet Gates are an economical buy in more ways than one. First of all, they're moderate in initial cost. And because they are Crane Quality in design, construction and materials... routine maintenance costs are negligible.

Crane stuffing box design provides liberal packing space to assure a tight stem seal; male and female bonnet joint is equipped with a soft iron gasket for maximum tightness; body seat rings, securely rolled-in, will not leak or loosen in service.

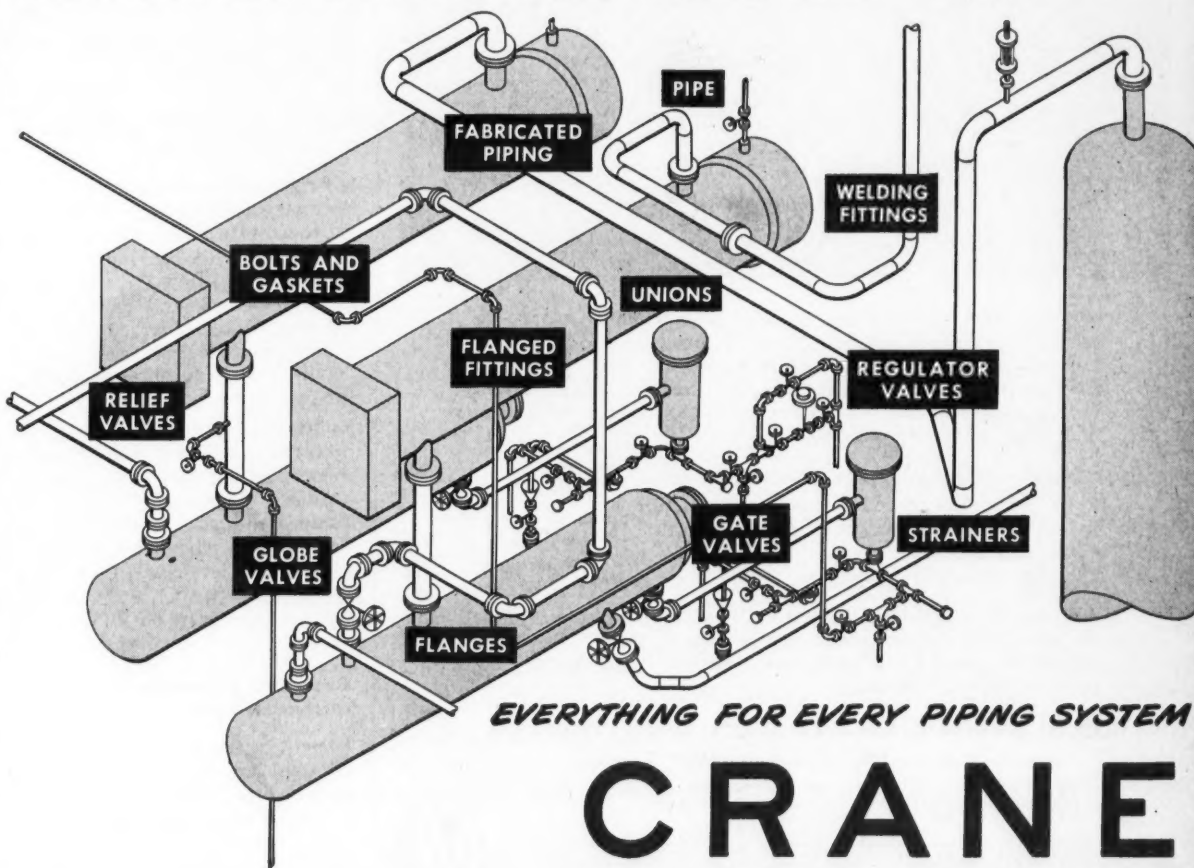
These valves are smooth operators. Guided disc does not get out of line or jam in body. Crane disc-stem connection prevents lateral strain on stem. Accurately cut, easily lubricated stem threads provide positive control with minimum friction. See your No. 49 Crane Catalog.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.  
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No. 3602L, 600-Pound Small Steel Gate for liquids or gases (not steam) up to 750° F. Crane 18-8 Mo Alloy seating. Sizes: 1/4 to 2-inch. Screwed or welding ends.

● THIS PROCESS PIPING INSTALLATION, FOR EXAMPLE, CAN BE 100% CRANE-EQUIPPED...ON ONE PURCHASE ORDER

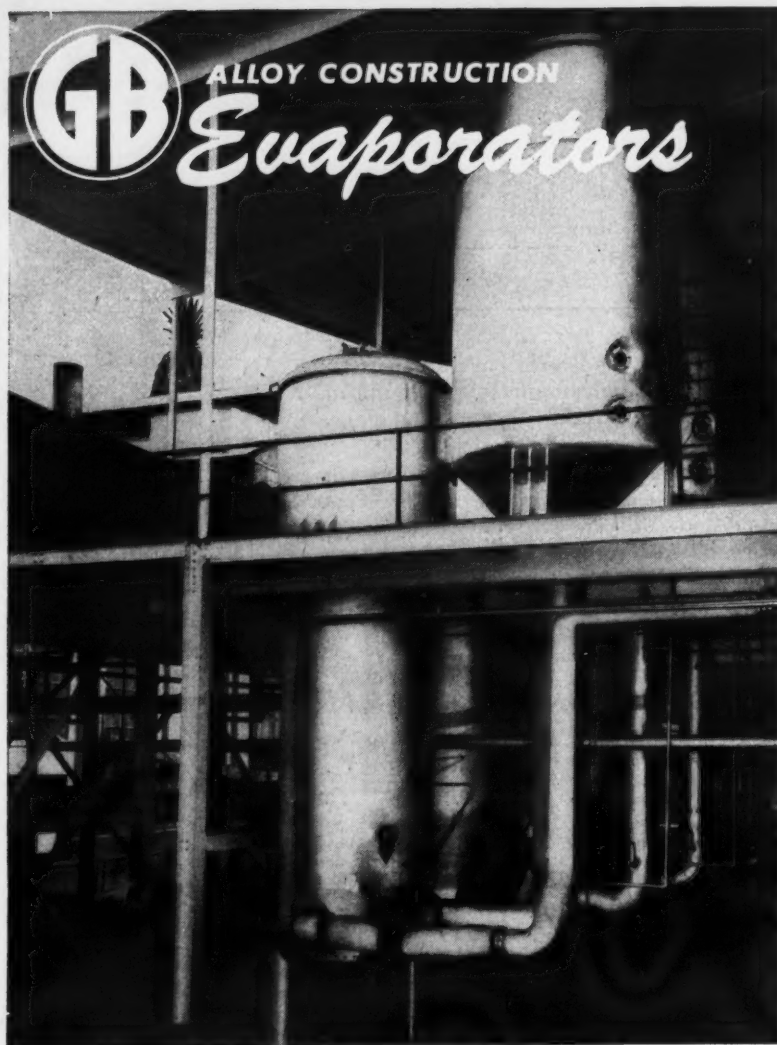


EVERYTHING FOR EVERY PIPING SYSTEM

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VALVES • FITTINGS • PIPE • PLUMBING AND HEATING

When inquiring check CP 8582 on handy form, pgs. 2-3



# **GB** ALLOY CONSTRUCTION *Evaporators*

Many new process developments necessitate alloy construction to assure freedom from corrosion and product contamination. In the Hawaiian Pineapple Company's efficient, modern plant, the Goslin-Birmingham quadruple effect evaporator, one view shown above, plays a part in upholding their high standards of purity.

Some of the features of installation are—

- All Type 316 Stainless Steel construction
- Ample capacity for peak loads
- No entrainment losses
- Fully automatic operation

If special alloy construction will improve your product or reduce costly replacements, be sure to call on G-B's highly skilled engineers for recommendations. Your inquiry will receive prompt attention.

**GOSLIN-BIRMINGHAM MANUFACTURING COMPANY, Inc.**  
BIRMINGHAM, ALABAMA

NEW YORK: Goslin-Birmingham Mfg. Co., Inc., 350 Madison Ave., N. Y. 17  
CHICAGO: F. M. deBeers and Assoc., 20 N. Wacker  
HAWAII: P. S. Pell and Company, Honolulu 6

EVAPORATORS. CONCENTRATORS. CONDENSERS. FLAKERS. FILTERS.  
STANDARD AND SPECIAL EQUIPMENT FOR CHEMICAL PROCESS INDUSTRIES



When inquiring check CP 8583 on handy form, pgs. 2-3

## NEW LITERATURE

### Laboratory equipment fills 25 pages

Autoclaves, water baths, ovens, sterilizers, and water heaters are among items of laboratory equipment illustrated, described, and specified in 25-page catalog. Catalog 50 is issued upon receipt of letterhead request by the Acme Laboratory Equipment Co., Dept. CP, 506 W. 124th St., New York 27, N. Y.

### Tells applications for rubber hose

Manufacturer recommends his hose (rayon braid imbedded in synthetic rubber) for intermittent, light-duty service in handling air, water, mild chemicals, and moderate amounts of gasoline and oils. Ten sizes range from 3/16 to 3/4" inside diameter, and are for working pressures of approximately 250 pounds.

Six-page, envelope-size Bulletin covers construction, applications, and specifications; is issued by the Hewitt-Rubber Div., Hewitt-Robbins Inc., Dept. CP, 240 Kensington Ave., Buffalo 5, N. Y. When inquiring specify CP 8584 on handy form, pages 2 and 3.

### Job studies reveal savings in material handling

How a warehouse concern increased material handling rate from 1.9 to 5.2 tons per man hour by employing a fleet of 42 fork-lift trucks for loading and unloading lighters, barges, ships, box cars, and trucks is told 8-page, 2-color folder. Presented in problem-and-solution form, complete details and illustrations accompany this job study.

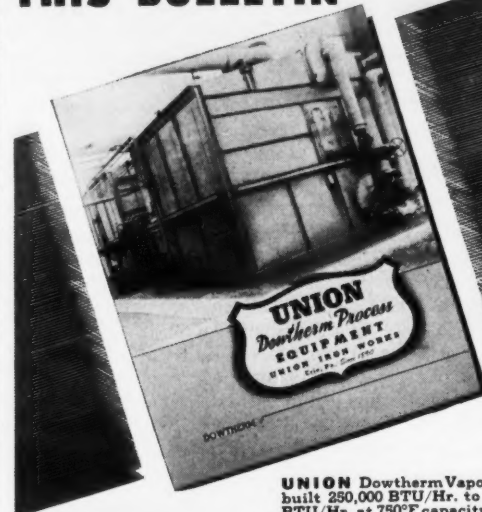
Solutions to other material handling problems — wood pulp handling, sheet steel and baled commodities handling — are also related. Job Study 94 is available from Towmotor Corporation, Dept. CP, 1226 East 152nd St., Cleveland 10, O. When inquiring specify CP 8585 on handy form, pages 2 and 3.

### Describes pulverizers, dust collectors

Pulverizing equipment (for fine and ultra-fine grinds) and dust collecting equipment (for recovery of fines from air in grinding operations) are described in 50-page, 2-color profusely illustrated booklet. Three pages give listing of materials to which equipment is applicable.

Includes installation photos and ar-

## YOU will want THIS BULLETIN



UNION Dowtherm Vaporizers are built 250,000 BTU/Hr. to 30,000,000 BTU/Hr. at 750°F capacity, to applicable Construction Codes. Fired with fuel, gas or oil or designed for special fuels. Bulletin 124 gives full details on Union Dowtherm Process Equipment. Write today for this information.

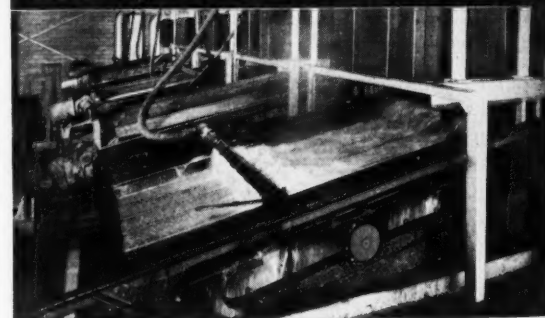
**UNION**

PROCESS  
EQUIPMENT

**UNION IRON WORKS**  
Since 1890  
650 CASCADE ST. ERIE, PA.

When inquiring check CP 8586 on handy form, pgs. 2-3

## Recover Solids and Clarify Your Waste Water



## with LINK-BELT Vibrating Screens

These five screens, equipped with power-propelled traveling sprays, recover particles of pulp and return both the dewatered pulp and the clarified water back to the system.

Link-Belt vibrating screens are employed in many types of plants for separating liquids and solids, reducing stream pollution, sizing and dewatering, and recovering valuable by-products. Contact the nearest L-B office for recommendations.

**LINK-BELT COMPANY**

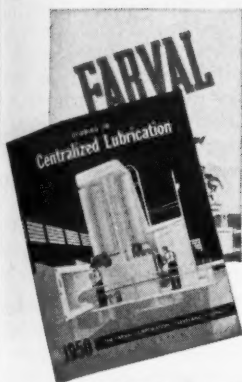
Philadelphia 40, Chicago 9, Indianapolis 6, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8.  
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1977-A

When inquiring check CP 8587 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## New report on savings with centralized lubrication



**YOURS for  
the asking** ➔

**F**OR more than 20 years, Farval has been saving money for users. Through efficient, dependable lubrication of machines and industrial equipment of all kinds, Farval saves 4 ways: It saves oiling labor, it saves lubricant, it reduces bearing expense, it eliminates down time.

The Farval System is a positive mechanical method of delivering oil or grease under pressure to a group of bearings from one Central Station, in exact quantities, as often as desired. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing.

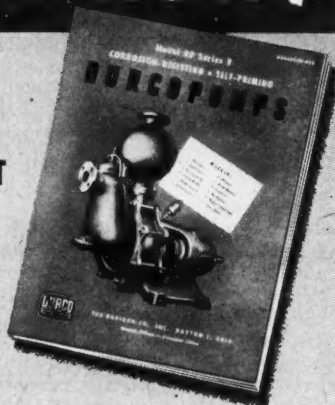
Catalog No. 25 and "Case Studies—1950" give you the facts and figures. The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.



When inquiring check CP 8588 on handy form, pgs. 2-3

## READY NOW!

**NEW BULLETIN  
INTRODUCES A  
MORE EFFICIENT  
CORROSION-  
RESISTANT,  
SELF-PRIMING  
PUMP**



New Bulletin contains features, cross-section drawing, test curve and data on faster priming time and improved air-handling capacity.

Pump features include:

1. New design wet end that cuts priming time 66-75%.
2. Increased air-handling capacity greatly improves ability to hold prime.
3. Pump available in 12 Durco corrosion-resistant alloys.

For the entire story on these new DURCOPUMPS, write for your free copy of Bulletin 816, today.

**THE DURIRON CO., INC., DAYTON, 1, OHIO**  
Branch Offices in Principal Cities



DURCO Adv. 103-GM

When inquiring check CP 8589 on handy form, pgs. 2-3

## NEW LITERATURE

rangements, equipment specifications, and exploded views of equipment. Outlines manufacturer's facilities for assisting customer in attaining processing efficiency.

"Mikro" booklet is issued by Pulverizing Machinery Company, Dept. CP, 133 Chatham Road, Summit, N. J. When inquiring specify CP 8590 on handy form, pages 2 and 3.

### **Wear patterns corrected by alloy welding**

Eight-page bulletin lists line of hard-facing alloy electrodes designed to correct wear patterns caused by abrasion, impact, compression, corrosion, or heat. Sections include properties, welding procedure, typical applications, sizes, and color identification. Bulletin 10550 is issued by the Alloy Rods Company, Dept. CP, York, Pa. When inquiring specify CP 8591 on handy form, pages 2 and 3.

### **Details titration method for determining sulfate**

Determination of sulfate or sulfite in non-metallic minerals by a titration method should interest those who determine sulfate in the presence of sizable quantities of calcium. Method effects a considerable saving of time as compared with conventional gravimetric methods, and offers same accuracy. Method consists of extracting the sulfate from finely pulverized cement or stone by boiling with ammonium carbonate. Extract is separated from stone by filtration, and boiled to remove excess ammonium carbonate. Solution is then titrated using maker's indicator for sulfates.

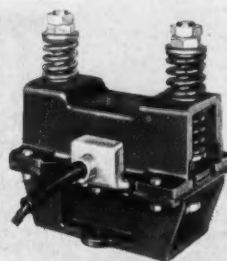
Principles, accuracy, and procedure of method are detailed in 7-page technical bulletin issued by the Smith New York Co., Inc., Dept. CP, Freeport, Long Island, New York. When inquiring specify CP 8592 on handy form, pages 2 and 3.

### **Catalog lists 13 major organic chemicals**

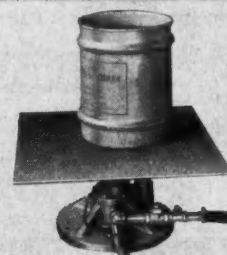
High-purity organic chemical compounds for use as intermediates process raw materials, and formula ingredients are listed in 4-page catalog. Includes compounds' structure, salient properties and reactions, and principal commercial uses in tabular form.

"Edwal Fine Chemicals" is available from The Edwal Laboratories, Inc., Dept. CP, Ringwood, Ill. When inquiring specify CP 8593 on handy form, pages 2 and 3.

## **STOP MATERIAL FUMBLING WITH SYNTRON**



**BIN VIBRATORS**  
Make Stubborn Materials Flow Freely



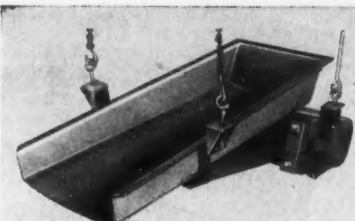
**PACKERS and JOLTERS**  
Electric-Hydraulic-Pneumatic



**HOPPER LEVEL SWITCHES**  
Control Maximum and Minimum Hopper Contents



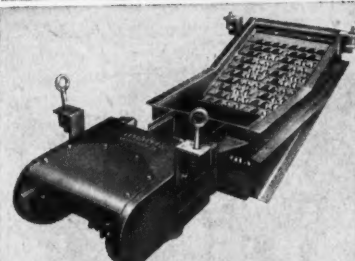
**LONG "Vibratory" CONVEYORS**  
No Motors, Gears or Other Mechanical Wearing Parts



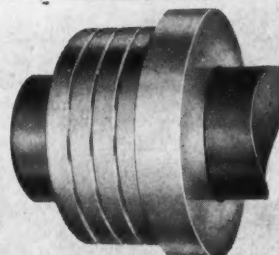
**VIBRATORY FEEDERS**  
Up to Hundreds of Tons per Hour — Rheostat Control of Flow



**VIBRATING GRIZZLIES**  
Both Feed and Scalp With One Unit



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Wet or Dry — Single or Multiple Decks



**SHAFT SEALS**  
Replace Packing and Eliminate Leakage From Around Rotating Shafts

Separate, descriptive bulletins — or a complete catalog — write to —

**SYNTRON CO.**

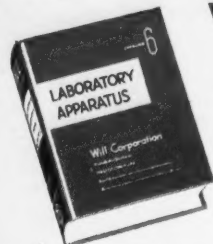
110 Lexington

Homer City, Pa.

When inquiring check CP 8594 on handy form, pgs. 2-3

*What they're saying...*

about the **COMPLETELY NEW**  
**WILL CORPORATION**



## CATALOG

6

of laboratory apparatus  
and supplies

"The arrangement of items is very practical: things that go together are found together."

"I like your indexing system — I can find the right equipment in a matter of seconds."

"Illustrations are sharp and clear — next best thing to having a sample."

We hope you're finding Catalog 6 equally useful. And if, by chance, yours hasn't reached you yet, write the nearest office-warehouse listed below — on your company letterhead. Address Dept. CP.



Rochester 3, N. Y. . . . Will Corporation  
New York 12, N. Y. . . . Will Corporation  
Buffalo 5, N. Y. . . . Buffalo Apparatus Corp.  
Atlanta 3, Ga. . . . Southern Scientific Co.

When inquiring check CP 8595 on handy form, pgs. 2-3

*Speaking of Steam Traps!...SAY!*

**COE DRAINATORS**

*the NEXT TIME YOU ORDER*

**for these GOOD SOLID REASONS**

1. Coe Drainators incorporate NO MOVING PARTS in their construction which could wear and require replacement.
2. Air binding is eliminated as large volumes of air and non-condensable gases pass through Drainators with the condensate.
3. Visible indication of Drainator's operation is afforded in the gauge glass.
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5. Drainator installations use simple "straight-through" piping. No by-pass or extra fittings are required.

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**The COE MANUFACTURING CO.**  
503 BANK STREET • PAINESVILLE, OHIO

**DRAINATOR • THE ADVANCED STEAM TRAP**

When inquiring check CP 8596 on handy form, pgs. 2-3

**80% REDUCTION IN SET-UP TIME with**

**the New AUTOCLAVE "Speed-Line" of VALVES AND FITTINGS**

Operating Pressures to 6000 PSI

These valves and fittings have been designed to cover a pressure range up to 6,000 PSI. For systems in this pressure range installation time can be reduced 80%, a real saving in time.

Autoclave Engineers "Speed-Line" use the *Ermato-Seal* principle of sealing . . . No Threading . . . No Beveling. Valves and Fittings available from stock in type 303 S.S. Standard Sizes are for 1/4" O.D. and 3/8" O.D. tubing. Other materials on application.

**AUTOCLAVE ENGINEERS, INC.**  
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LABORATORY & PILOT PLANT HIGH PRESSURE EQUIPMENT

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Write for Bulletin No. 51550P

When inquiring check CP 8597 on handy form, pgs. 2-3

## NEW LITERATURE

### Accuracy to four decimals attributed to balance

Four-page folder describes recent improvements made in precision balance. Latest model features a cantilever-type beam, non-corroding stainless steel weights, and a simplified optical system. Balance is of the one-pan type and permits accurate weighings to the fourth decimal place. "Gram-atic Balance" is issued by Fisher Scientific Company, Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. When inquiring specify CP 8598 on handy form, pages 2 and 3.

### 10 methods for determining thermal expansion

To meet the needs of science and industry for information on the thermal expansion of materials, the National Bureau of Standards has issued a circular entitled "Thermal Expansion of Solids". Gives 10 methods for determining thermal expansion, and presents procedures used to obtain expansion equations and coefficients of expansion of materials.

Methods given include the precision micrometric method, interference method, fused-quartz tube and dial-indicator method, and X-ray method. Also describes methods for determining volume changes in metals and alloys during casting. Relationships between thermal expansion, temperature, chemical composition, density, compressibility, specific heat, melting point, and atomic weight are illustrated and discussed. Circular C486 contains 29 large double-column pages. Remit 20c direct to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C.

### Fans and blowers meet many requirements

Unusually complete line of ventilating fans and blowers are cataloged in a 22-page, 2-color engineering data book. Window fans, penthouse fans, all-purpose fans, ventilation blowers, and louver systems are represented. Discussions, illustrations, and specifications accompany each type. Chelsa catalog is available from Chelsa Fan & Blower Co., Inc., Dept. CP, 1206 Grove St., Irvington, N. J. When inquiring specify CP 8599 on handy form, pages 2 and 3.

### Catalogs equipment, materials for radioisotope work

Extensive line of nuclear instruments and laboratory equipment illustrated, described, and specified in 91-page, 2-color catalog is designed for application of radioisotopes to research and industry. Includes three different types of scalers, an automatic sample charging system, survey and rate meters, and preamplifiers. Catalog lists 325 inorganic compounds tagged with 25 different radioisotopes; 50 carbon-14 tagged organic compounds; and 25 deuterated compounds. Catalog B, issued by Tracerlab Inc., Dept. CP, 130 High St., Boston 10, Mass. When inquiring specify CP 8600 on handy form, pages 2 and 3.

### Treats developments in petroleum chemicals

"The Petroleum Chemicals Industry" is an impartial and objective account of the growth of the American petroleum industry, written by Richard Frank Goldstein. Places spe-

CHEMICAL PROCESSING

## NEW LITERATURE

cial emphasis on the developments of the past 10 years. Beginning with the source materials of the petroleum industry, book treats the chemistry of paraffins, the manufacture of olefins and other hydrocarbons, and the manufacture and reactions of the major petroleum chemicals. Includes a discussion of the chemical by-products of refinery operations.

Remit \$8.50 direct to John Wiley & Sons, Inc., Dept. CP, 440 Fourth Ave., New York 16, N. Y. When inquiring specify CP 8601 on handy form, pages 2 and 3.

### Negative gradient is feature of elastic steel member

Two-color, 4-page bulletin describes the four major forms of elastic member possessing either constant or negative force-deflection characteristics. Forms — extension spring, clamp, and 2 types of spring-driven motors — are presented by engineering drawings and application photographs. Bulletin 310-A is available from the Hunter Spring Company, Dept. CP, 1 Spring Avenue, Lansdale, Pa. When inquiring specify CP 8602 on handy form, pages 2 and 3.

### Monograph on solvents is revised, enlarged

Technical application of solvents, particularly with reference to the cellulose-lacquer industry, is presented in the revised, enlarged sixth edition of "Solvents", by T.H. Durrans. Much recent information on plasticizers and plastics is included, and chapters in Part I, dealing with scientific fundamentals, have been extended—particularly that on toxicity.

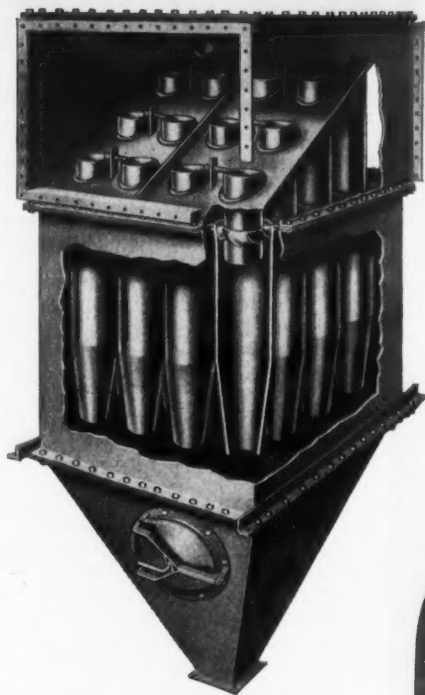
Part II, dealing with individual solvents and their use, contains chapters on hydrocarbons, nitroparaffins, alcohols, ketones, esters, etc. Trade names, solubility tables and plasticizer proportions are included. 242 pages. Vol. 4 of a series on applied chemistry, edited by E. H. Tripp. Remit \$6 direct to D. Van Nostrand Company, Inc., Dept. CP, 250 Fourth Ave., New York, N.Y. Or, when inquiring, specify CP 8603 on handy form, pages 2 and 3.

### Fabricating molybdenum is topic of data bulletin

Methods and procedures for forming and fabricating molybdenum are detailed in 5-page bulletin. Punching, shearing, drawing, spinning, heating, annealing, brazing, welding, cleaning, etching, grit blasting, and hydrogen firing are covered. Includes information not heretofore published. Technical Data Bulletin 4.303 is issued by the Fansteel Metallurgical Corporation, Dept. CP, North Chicago, Ill. When inquiring specify CP 8604 on handy form, pages 2 and 3.

### 200' separate components of hydraulic controls

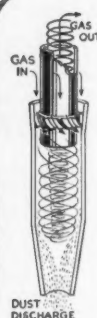
Seven-page bulletin describes hydraulic remote controls for industrial use. Includes two series of controls and available accessories, photographs of products in use and cutaway drawings of transmitter and receiver. Specifications are given in tabular form. Under ideal conditions, transmitter can be mounted 200 ft from receiver. Bulletin 20-105 is issued by C. E. Hohl, Dept. CP, Industrial Sales Section, Sperry Products, Inc., Danbury, Conn. When inquiring specify CP 8605 on handy form, pages 2 and 3.



In dust and fly ash recovery

## MULTICLONE COLLECTORS

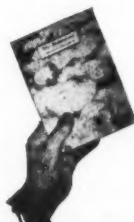
and only Multiclones give vital advantages like these...



Long and narrow



Square



### FREE INFORMATIVE BOOKLET

This 32 page booklet outlines the basic principles of centrifugal dust recovery and shows the many ways MULTICLONE advantages assure higher recovery at lower overall costs. A free copy of this booklet will gladly be sent on request. Write today!

Before you decide on any recovery equipment be sure to get complete information on MULTICLONE advantages. A letter, wire or phone call to our nearest office places this information in your hands without obligation. Get all the facts and you will get MULTICLONE Collectors!

**N**o wonder "MULTICLONE" is the leading name in the centrifugal recovery of dust and fly ash from all types of gases, hot or cold.

No other mechanical recovery equipment has so many years of dust and fly ash recovery experience behind it... or has such uniformly high collecting efficiency... or provides so many other money-saving, space-saving advantages as MULTICLONE. The four advantages outlined below are by no means the complete MULTICLONE story, but are typical of the vital savings found *exclusively* in MULTICLONE equipment...

### Uniformly High Recovery:

MULTICLONE's multiple small diameter tubes—made possible by its exclusive vane design—whirl the dirty gases with greater centrifugal force, thus throwing out not only the large, medium and small particles, but also a high percentage of the *extremely* small particles of 10 microns and less. This, coupled with the fact that there are no pads or filters to become choked with recovered material, results in a more complete recovery of *all* suspended materials from the gas stream.

### Space-Saving Compactness:

Plant space costs money—so be sure to check space requirements carefully. As shown in the accompanying chart, the MULTICLONE requires less floor space and less cubic space than any other unit of comparable capacity and performance. Translate these savings into today's high costs for plant space and you readily see the great importance of this one MULTICLONE advantage alone!

Make	Relative Space Requirements	
	In Sq. Ft.	In Cu. Ft.
Multiclone	1.0	1.0
Collector A	2.1	1.8
Collector B	5.9	3.2
Collector C	6.8	3.9

### Maximum Adaptability:

In addition to its unusual compactness, the MULTICLONE is also unusually adaptable to various installation requirements. Where head room is low it can be installed with side-inlet side-outlet connections. Where side clearances are restricted, it can be installed with side-inlet top-outlet connections. In addition, without changing capacities, the shape of the unit can be varied—long and narrow, short and wide, or square—to fit restricted spaces... and its single-inlet single-outlet duct requirements permit greater flexibility and simpler installation. These savings slice installation costs, space requirements and insulating expense.

### Minimum Maintenance:

The MULTICLONE has no high speed moving parts to repair or replace... no pads or filters to clean or renew... nothing to choke the gas flow or increase draft losses as suspended materials are recovered. MULTICLONE draft losses remain uniformly low *at all times*. Further, the recovered material from an entire bank of tubes is collected in a *single* hopper—far easier to service and maintain than the multiple hoppers of conventional cyclone units.

WESTERN

# Precipitation

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ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

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When inquiring check CP 8606 on handy form, pgs. 2-3



**Lo-Veyors prove that**



**the  
cheapest  
way to  
handle  
bulk  
material  
is  
NOT  
to handle it.**

There is no money in moving bulk materials with wheelbarrows, shovels or other costly methods.

That's why production men are cutting costs and speeding up production with Ajax Lo-Veyors.

They are self-contained, vibrating conveyors ready to set in place and use. Easily installed on your floor, below your floor, or suspended from wall or ceiling.

Reciprocating drive unit is completely enclosed...no exposed bearings or idler pulleys subject to rapid wear.

Low first cost, low operating cost, low maintenance cost...it will pay you to look into Ajax Lo-Veyors.

**AJAX FLEXIBLE COUPLING CO. INC.**

**24 English St., WESTFIELD, N. Y.**

When inquiring check CP 8607 on handy form, pgs. 2-3

## NEW LITERATURE

### Hints on detergent use given in new folder

Illustrated folder describes hard water, alkaline detergent. Includes a convenient direction chart giving cleaning operations, concentration of material, washing temperatures, and general directions. "Special Hard Water Cleaner" is issued by Philadelphia Quartz Company, Dept. CP, Public Ledger Building, Philadelphia 6, Pa. When inquiring specify CP 8608 on handy form, pages 2 and 3.

### Offers literature detailing electrostatic precipitation

Electrostatic precipitation as a means for cleaning air, cleaning and recovering gases, painting, deposition, orientation, and separation is theme of interesting 15-page, 2-color bulletin. Many illustrations supplement discussions of these operations. Seven case histories cite advantages obtained through application of electrostatic precipitation equipment.

Various styles of precipitation equipment are pictured and described. Bul. GEA-5212, issued by the General Electric Company, Dept. CP, Schenectady 5, N. Y. When inquiring specify CP 8609 on handy form, pages 2 and 3.

### Specifies 5 solvents for extraction

Specifications for 5 commonly used extraction solvents — pentane, isohexane, hexane, isoheptane, and heptane — are set forth in 2-color pamphlet. Gravity, weight per gallon, vapor pressure, color, corrosion, and acidity are covered. The ASTM distillation range is listed — giving initial boiling points, 50 and 90% points, and dry points.

"Amsco Extraction Solvents", issued by the American Mineral Spirits Company, Dept. CP, 230 N. Michigan Ave., Chicago 1, Ill. When inquiring specify CP 8610 on handy form, pages 2 and 3.

### Surface active agents — 2 publications

Seven surface active agents — all stable in the presence of acids, alkalis, and salts — are identified as to application in 8-page folder entitled "Tergitol" Surface-Active Agents." Includes specifications. Tables show wetting action of products on various aqueous solutions, and the influence of organic solvents on their wetting action.

Another surface active agent, non-ion-



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FROM SPERRY'S  
COMPLETE  
STOCK**

Whatever your requirements, you will find the filter base you need in Sperry's stock of standard and special materials. And, Sperry engineers will be happy to work with you in selecting the base you need.

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Filtration Engineers  
for Over 50 Years

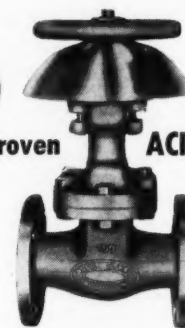
**SPERRY  
FILTER BASES**

When inquiring check CP 8611 on handy form, pgs. 2-3

**ALOYCO**

**introduces a proven ACID SHIELD VALVE**

#111—AS Gate  
Valve  
Size range  
1/2" - 10"



Same design as  
regular #111  
with acid shield  
added.

ALOYCO ACID SHIELDS meet rigid plant safety codes by adequately protecting the operator's face, hands and upper body from hazardous liquids without interfering with effective operation and maintenance of valves.

The stainless steel shield, being an integral part of the valve, does not need to be removed for inspection or repacking. Does not rise with stem—affords same degree of protection whether open or closed. All valves ordered with Alloyco Acid Shields are supplied with stainless steel yoke bushings and nuts and Teflon stem packing. The initial cost of these features is nominal and maintenance savings are substantial. Available in Alloyco 20, 18-8S, 18-8SMo, Monel, Nickel and other alloys.

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Pittsburgh — Wilmington

When inquiring check CP 8612 on handy form, pgs. 2-3

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Developed especially for the efficient handling of high temperature and highly volatile liquids. Delivers outstanding performance. Unbeatable on high head, small capacity duties.

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When inquiring check CP 8613 on handy form, pgs. 2-3

## MARLEY NOZZLES

are *First* choice in **CHEMICAL PROCESSING**



Chemical processing plants all over the world pick MARLEY NOZZLES for their outstanding efficiency in providing maximum break-up of water at lowest pressures. Three designs are available . . . ONE PIECE, TWO PIECE, ATOMIZING. None have moving parts . . . All meet specific needs. Write for Bulletin SN3-50 today.

**THE MARLEY COMPANY, INC.**

KANSAS CITY 15, KANSAS

When inquiring check CP 8614 on handy form, pgs. 2-3

## NEW LITERATURE

ic type, is described in data sheet entitled "Tergitol" Dispersant TMN-650". It is compatible with anionic, cationic, and non-ionic surface active agents; is especially useful where insoluble metal-soap formation presents a problem.

Both are issued by Carbide and Carbon Chemicals Division, Union Carbide and Carbon Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. When inquiring specify CP 8615 on handy form, pages 2 and 3.

### Renders cellulosic fabrics fire resistant

Chemical composition which imparts fire retardant properties to all types of cellulosic fabrics fulfills flame resistant requirements of Army Quartermaster Specifications JQD-242, Federal Specifications KKL-136B, National Bureau of Standards Commercial Standard CS-129-46, and the pyrolysis test.

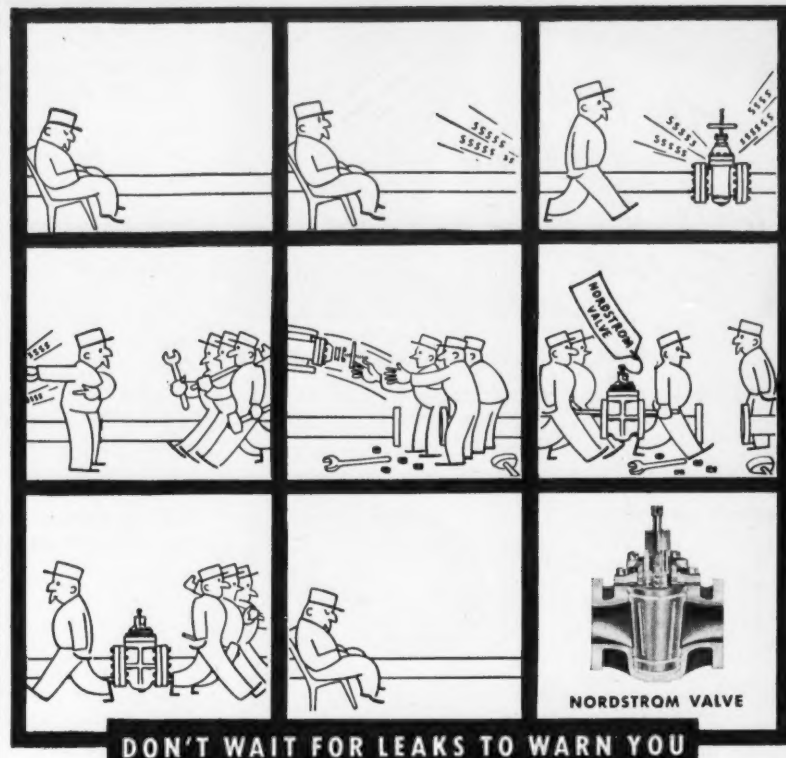
Ten-page Technical Bulletin P-28 contains suggestions for retardant's application; tells what it is and what it does. Issued by the Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo. When inquiring specify CP 8616 on handy form, pages 2 and 3.

### Tests fatigue at elevated temps

Direct-stress fatigue testing at elevated temperatures is possible with machine having furnace and control equipment. Static preload can be varied steplessly from 0 to 8000 pounds; dynamic load capacity is plus or minus 5000 pounds; and maximum capacity in one direction is 13,000 pounds. Bulletin 313 illustrates machine and tells how it works; is issued by The Baldwin Locomotive Works, Dept. CP, Philadelphia 42, Pa. When inquiring specify CP 8617 on handy form, pages 2 and 3.

### Catalogs temp-indicating products

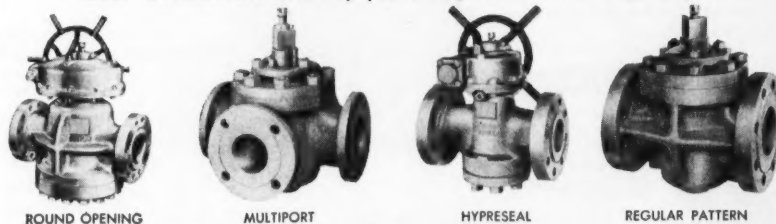
Temperature-indicating products — marking sticks, pellets, and lacquers — are featured in catalog. Material from which products are made melts at specific temperatures. Sticks are available for 56 temps between 113 and 2000°F; pellets for 66 temps between 113 and 2500°F; and lacquers for 48 temps between 113 and 1600°F. Directions for use are given in Catalog 501, issued by the Tempil Corporation, Dept. CP, 132 West 22nd St., New York 11, N. Y. When inquiring specify CP 8618 on handy form, pages 2 and 3.



**DON'T WAIT FOR LEAKS TO WARN YOU**

**WHY LEAKS?** Because a valve's packing has gone "haywire," or its seat has worn to the point of leakage and it can't effect a tight closure. Now compare Nordstrom. It is forever seated. The tapered plug never separates from its unexposed seat. Instead of using conventional packing to hug the stem or threads, Nordstrom applies a resilient anti-friction shoulder seal that can be tightened while the valve is under full pressure and in any position. Moreover, pressurized lubrication seals the valve — (1) at the seat, (2) around the ports — and now with Rockwell *Hypermatic* lubricant the valve is *automatically* lubricated to prevent leakage from even starting.

**KEEP UPKEEP DOWN**—by preventing leaks in the beginning.



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**LUBRICATED VALVES**

... now automatically lubricated with **HYPERMATIC** lubricant

Write for descriptive literature

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400 North Lexington Avenue, Pittsburgh 8, Pa.  
Atlanta, Boston, Chicago, Columbus, Houston, Kansas City, Los Angeles, New York, Pittsburgh, San Francisco, Seattle, Tulsa



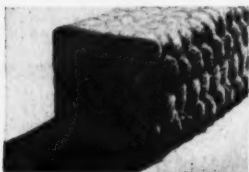
When inquiring check CP 8619 on handy form, pgs. 2-3

To you  
from Garlock  
Research

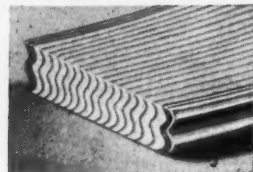
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GARLOCK *Bilan*\* Leather Packings—tanned and treated by an exclusive Garlock process for severe service.



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GARLOCK *Guardian*\* Gaskets—spirally wound metal and asbestos—are extremely resilient. Recommended for use against the highest temperatures and pressures.

GARLOCK *Chevron*\* Packing—an automatic packing made of asbestos or cotton base materials—accurately molded into rings of any size. Chevron packs high pressure jobs or low pressure jobs with minimum friction and wear.



GARLOCK *KLOZURE*\* Oil Seal Models 53 and 63—tough, durable, resilient. Complete range of sizes, including Metric O.D.

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PALMYRA, NEW YORK

In Canada: The Garlock Packing Company  
of Canada Ltd., Montreal, Que.



# GARLOCK

When inquiring check CP 8620 on handy form, pgs. 2-3

## NEW LITERATURE

### Material testing machine has capacity of 60,000 lb

Four-page bulletin describes material testing machine that can be used for tension, compression, and transverse testing. Two standard ranges are available, 0-12,000 lb and 0-60,000 lb, each with accuracy of about  $\pm 1\%$ . Lateral space between columns is 10", and vertical space between gripping heads is from 1 to 18". Spans of 24" can be accommodated in transverse operations. Loading unit and control unit are separate, allowing flexibility of space requirements; recoil is not transmitted to indicator, cannot jar position of dial hands.

Bulletin 310 is issued by The Baldwin Locomotive Works, Dept. CP, Philadelphia 42, Pa. When inquiring specify CP 8621 on handy form, pages 2 and 3.

### Can lid embossers mark from 4000-5700 lids per hour

Four-page bulletin illustrates and gives specifications of three can lid embossing machines. Roll principle eliminates impact of stamping presses. Capacities vary from 4000 to 5700 lids per hour. Includes description of foot press embosser for lower speed production. Bulletin B-2A is issued by Jas. H. Matthews & Co., Dept. CP, 3942 Forbes St., Pittsburgh 13, Pa. When inquiring specify CP 8622 on handy form, pages 2 and 3.

### Data sheet discusses crotonaldehyde

Specifications and useful physical properties of this reactive aldehyde are listed in technical data sheet. Suggested uses include service as specialty solvent, synthetic intermediate, rubber vulcanization accelerator, and warning agent for detecting gas leaks. Safety data is included. "Crotonaldehyde" is issued by Tennessee Eastman Corporation, Dept. CP, Kingsport, Tennessee. When inquiring specify CP 8623 on handy form, pages 2 and 3.

### Carbon black dispersions are specified in brochure

Compact summary of technical data and operating suggestions covering concentrated carbon black dispersions is contained in 4-page brochure. Brief explanation of advantages of predispersion is supplemented by particular descriptions of application, characteristics, composition, and handling of 7 standard carbon blacks. Listed uses include coloring polystyrene molding powders or scrap, virgin or scrap polyethylene, and resins in general. Reference is also made to company's custom dispersing service.

Copies of "Concentrated Carbon Black Dispersions" may be obtained from Acheson Colloids Corporation, Dispersed Pigments Division, Dept. CP, 420 Lexington Ave., New York 17, N. Y. When inquiring specify CP 8624 on handy form, pages 2 and 3.

### 72 lbs is tare weight of propane cylinders

Propane gas cylinders weighing 72 pounds (tare) are fabricated from high tensile strength alloy steel, and are furnished with either aluminum ground coat or with red oxide ground coat. Cylinders are available with or without



## CUSTOM FABRICATORS

Specializing in

**CORROSION AND  
HEAT RESISTANT ALLOYS**

### A TYPE 347

### STAINLESS GAS SCRUBBER

12" I. D. x 15' overall, bottom portion 30" diameter x  $\frac{1}{4}$ " wall, Scrubber portion  $\frac{1}{8}$ " wall. Equipped with six spray nozzles with sight glass opposite each nozzle. Entire unit stress-relieved as a unit after welding to comply with A. S. M. E. Code.

Our staff of technical experts are prepared to specifically design equipment for a laboratory or a complete plant.

## ALLOY FABRICATORS

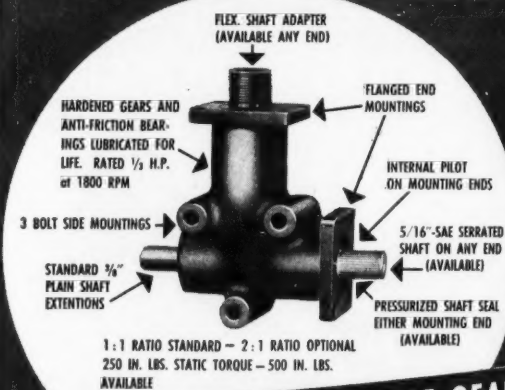
DIVISION OF CONTINENTAL COPPER AND STEEL INDUSTRIES, INC.

PENNY AMBOY - NEW JERSEY



When inquiring check CP 8625 on handy form, pgs. 2-3

## the new ANG Gear



**STANDARDIZED RIGHT ANGLE GEAR  
UNIT with UNIVERSAL MOUNTING**

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ACCESSORIES CORPORATION**

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HOLLYWOOD, CAL., DALLAS, TEX., OTTAWA, CAN.

When inquiring check CP 8626 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## NEW LITERATURE

out caps or valves inserted; can be supplied with customer's registered mark and serial numbers. Specifications are: capacity, 100 pounds propane; dimensions, 14½" inside diameter and 44-7/8" in height; working pressure, 240 psi; and approximate units per carload, 500 to 550.

Illustrations and descriptions are contained in Bulletin 466, issued by the Harrisburg Steel Corporation, Dept. CP, Harrisburg 28, Pa. When inquiring specify CP 8627 on handy form, pages 2 and 3.

### Motor construction features shown in bulletin

Polyphase squirrel-cage motors ranging from ½ to 600 hp are described in 3-page bulletin. An interesting inclusion is graph of typical speed-torque curves for these types of motors. Bulletin also shows construction of motors in detail by means of cutaway views and installation photographs. Bulletin B-201 may be obtained from Star-Kimble Electric Company, Dept. CP, 200 Bloomfield Ave., Bloomfield, N. J. When inquiring specify CP 8628 on handy form, pages 2 and 3.

### Electrolytic cleaning process and compounds discussed

Versatile compound described in 5-page booklet is suitable for either direct or reverse current cleaning of both ferrous and cuprous metals. Essentially a hot tank cleaner, it has high electrical conductivity, good qualities of wetting, emulsification, soil suspension and hard water control, and a high soil load tolerance. Included in booklet are general information on electrolytic cleaning processes, theory of both direct and reverse current cleaning, and advantages of each process.

"An Introduction to Electrolytic Cleaning" is available from the Industrial Division, The DuBois Company, Dept. CP, Cincinnati 3, O. When inquiring specify CP 8629 on handy form, pages 2 and 3.

### Flow rate gauges available in single-, dual-mounts

Flow rate indicators for air and noncorrosive gases are described in 8-page bulletin. Twenty-one illustrations and photographs show dimensions, construction, and actual installations. Indicators are available for all specific gravities of gas, for temperatures to 150°F., and for pressures to 50 psi. Bulletin contains selection table for single- and dual-mounts and instructions for ordering. Bulletin SC-4.1 is issued by Selas Corporation of America, Dept. CP, Philadelphia 34, Pa. When inquiring specify CP 8630 on handy form, pages 2 and 3.

### Natural and synthetic rubbers coat varied base fabrics

Rubber-coated fabrics are listed in 8-page bulletin. Coatings include neoprene, Buta-N, and natural rubber; base fabrics are cotton, nylon, or Fiberglas. Specifications given for fabrics are width, gauge, tensile strength, bursting strength, weight, uses, and general comments. Also contains sections on special-purpose fabrics and sheet stock. Bulletin 11 can be obtained from Vulcan Rubber Products, Inc., Dept. CP, 58th St. and 1st Ave., Brooklyn 20, N. Y. When inquiring specify CP 8631 on handy form, pages 2 and 3.

# ELECTROSTATIC ...YES

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The advent of the Buell 'SF' Electric Precipitator breathes new life into precipitator design. High efficiency recovery of ultra-fine dusts, fumes and vapors takes on new operating ease and reliability.

Both management and plant engineers will find in the Buell 'SF' Precipitator sound reason to anticipate superior performance. Advanced design provides self-tensioned Spiralelectrodes (patented), and incorporates an exclusive StediFlow dust-fall principle. Either as Precipitator alone, or in combination with Buell van Tongeren cyclones, there is definite operating advantage.

Like all Buell Dust Collection Systems, each 'SF' Precipitator installation is custom-engineered for the job it will do...backed by a realistic fractional efficiency guarantee...produced against a background of world experience in dust collection.

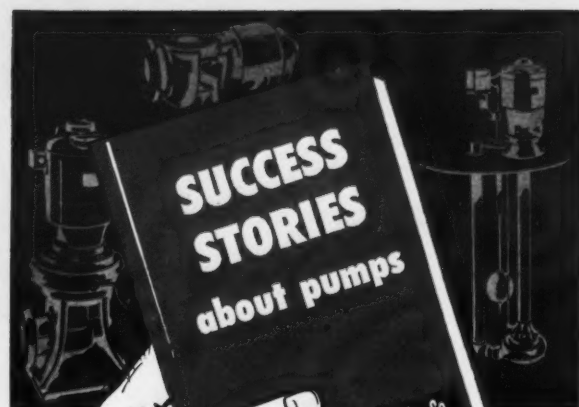
For general information or specific performance data, write  
Buell Engineering Co., Inc., 70 Pine Street, Room 5026, New York 5, N. Y.



# buell

## Engineered Efficiency in Dust Collection

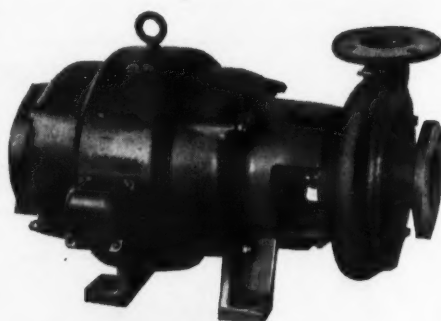
When inquiring check CP 8632 on handy form, pgs. 2-3



Here at WEINMAN there IS such a book. It's our book of completed orders for efficient pumping service. This book has thousands of chapters—no two just alike. But each chapter ends the same way . . . another satisfied WEINMAN customer.

If you have the responsibility for efficient liquid handling at your plant, it will pay you to consult a WEINMAN representative. He will help you work out any pumping problem—application—installation—or replacement. Your problems can then be solved and another "success story" will be added to our book.

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Weinman General Service UNIPUMP handles up to 1000 G.P.M., heads to 500 feet.

Representatives in Principal Cities.

Built by Centrifugal Specialists  
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When inquiring check CP 8633 on handy form, pgs. 2-3

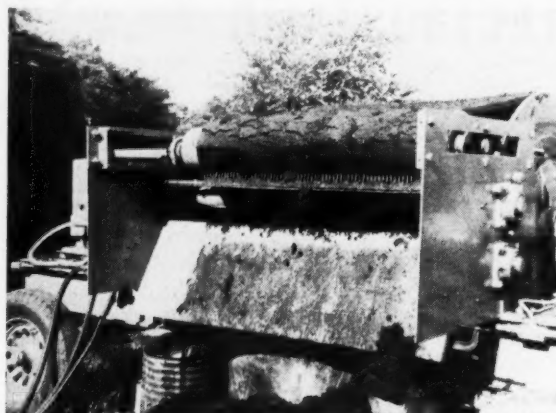
## Coil Spring Filter Medium Removes Most Solids, Does Not Clog in Operation

Long-lived springs are easily replaced when desired;  
filter construction is simplified

**USES:** Filtration of a wide range of products and wastes. Particularly suited for coal fines, cyanide slimes, beet sugar juices, iron oxide, paper pulp, penicillin, soybean protein, steel mill wastes and sewage sludge. Other typical materials are lime sludge, sugar muds, brewer's mash, distiller's stillage and rubber wastes.

Filters have been found able to handle many materials that clog cloth filters.

**Features:** The coiled springs used as filter media do not clog and reduce filtration rate or increase moisture



Trailer-mounted demonstration coil spring filter

content of cake as filter cloth might do; however, the filtrate is reported to contain relatively low suspended solids content. Output of cake exceeds that of conventional cloth-covered filters, per unit area. Deviations from normal flow or conditioning of sludge are handled without harm to filter.

Springs are made in a variety of metals to suit specific applications. They normally have a long life—reported as at least 5 years—and can be replaced, a section at a time, easily and quickly. Radial filtrate pipes are on the outside of the drum for convenience of cleaning and inspection. Drum construction is simplified.

**Description:** Filtration is accomplished through the helices of two sets of coiled springs laid in corduroy fashion. Both sets of springs leave the drum to convey the cake to a discharge roller. After discharging, the two sets of springs separate and are washed continuously as the drum rotates. The springs are again brought together on the drum after washing.

Each spring is separate and is made endless by joining ends with a threaded plug which engages the interior of the spring coil. Springs are replaced by uncoupling the old one and installing a new one.

Filtrate flows along spaces between the lower springs and into a series of troughs on the drum face. These troughs

connect with the external radial filtrate pipes which are connected to vacuum source. Drum is made of alloy steel. Design eliminates need for backing screen, wire winding, built-up drainage and wooden stave construction.

Standard sizes of these coil spring filters range from 50 to 500 sq ft.

**Source:** Product of Komline-Sanderson Engineering Corporation, Dept. CP, Peapack, N. J. . . . or for more information check CP 8634 on handy form, pages 2 and 3.

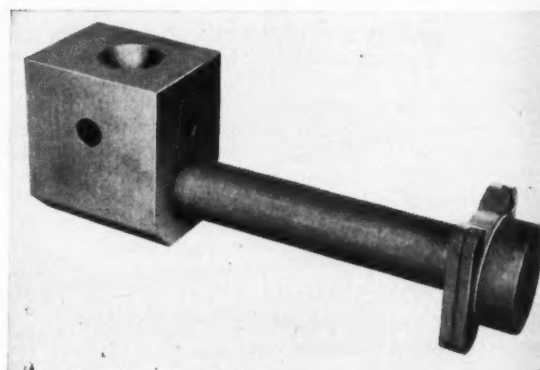
**Corrosive liquids can be heated, agitated by steam jets . . .**

graphite construction of parts exposed to liquid or fumes affords corrosion resistance

**Uses:** Circulating steam jets are adapted to the heating and agitation of liquids in tanks where dilution of the solution is not harmful. Recommended uses include heating acid solutions, dissolving lump or powder chemicals, circulating acid solutions in ore digesters, and cooking.

**Features:** Graphite construction of parts exposed to corrosive action of liquid being treated affords protection from corrosion.

**Description:** Corrosion resistance is provided by the jet itself, being made entirely of "Karbate" impervious graphite, the riser being a standard impervious graphite pipe fitted with a Neoprene "Flexlock" gasket at the submerged connection to the jet. A type V flange connection at the



Graphite parts make steam jet corrosion resistant

other end permits simple connection to steam lines. Jets withstand action of practically all corrosive liquids including sulphuric acid, hydrochloric acid, and nitric-hydrofluoric acid mixtures, and can be subjected to severe thermal shock without cracking, chipping, or spalling. Two sizes are available, with riser assemblies to 9' 3-3/4" in height.

**Source:** Series FM-1A "Karbate" Brand impervious graphite circulating Steam Jets are manufactured by Na-

tional Carbon Division, Union Carbide and Carbon Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. . . . or for more information check CP 8635 on handy form, pages 2 and 3.

**Heats water to 80° F for delivery in quantities up to 600 gph . . .**

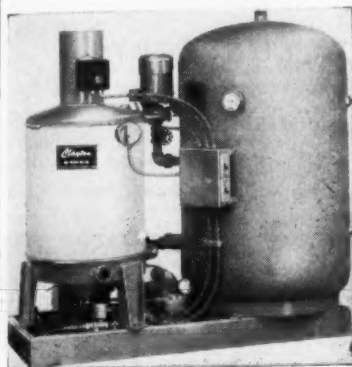
oil or gas fired units furnished ready to install; no erection equipment necessary

**Uses:** Provides continuous supply of hot water at 80° F in quantities up to 600 gph.

**Features:** Simultaneous delivery of hot water at two different temperatures may be obtained by an optional blending accessory. All controls are fully automatic, including a high temperature safety cut-off to protect against damage from possible water failure. High velocity, forced circulation results in a thermal efficiency of 75%.

Temperature shock of the cold water supply plus centrifugal action induces the precipitation and separation of solids within the storage tank. Trapped sludge is easily drained through a bottom clean-out valve.

**Description:** Heater is delivered complete with controls, circulating pump, burner, safety valve, and is ready to operate



Heater has thermal efficiency of 75%

after being connected. Heater stands 5' high and requires space 5 x 3'. Tank is 140 gal. capacity, is fully insulated and an integral part of the unit. However, heating unit is available without tank, if desired.

**Source:** Clayton Mfg. Co., Dept. CP, P. O. Box 550, El Monte, Calif. . . . or for more information check CP 8636 on handy form, pages 2 and 3.

#### Booklet contains new lighting specifications, revisions

Forty-four-page booklet contains detailed specifications for 18 different fluorescent and incandescent industrial lighting units. Four new specifications deal with industrial lighting units utilizing longer-length lamps for which heretofore there have been no nationally-recognized standards: a 72" fluorescent 3-lamp, open end porcelain enamel unit; a 72" fluorescent 2-lamp, open end porcelain enamel unit; a 96" fluorescent 3-lamp, open end porcelain enamel unit; and a 96" fluorescent 2-lamp, open end porcelain enamel unit.

Specifications cover materials, shielding angle, reflector dimensions and contour, efficiency, auxiliary control equipment, ballast temperatures, and National Electric Code requirements. Several important revisions are incorporated, one being the increase in mean reflection factor on 12 different units from 79% to 82%. "RLM Standard Specifications for Industrial Lighting Units" is issued by RLM Standards Institute, Dept. CP, Chicago, Ill. When inquiring specify CP 8637 on handy form, pages 2 and 3.

JULY, 1950

## there are **WHEREVER YOU TURN.. CHIKSAN** designs for your Flexible Lines

CHIKSAN Ball-Bearing Swivel Joints are manufactured in more than 500 different Types, Styles and Sizes; from  $\frac{3}{8}$ " to 12" (larger sizes to order); for pressures from vacuum to 15,000 psi.; for temperatures from -40° to 700° F.; in malleable iron, nickel-bronze, aluminum, steel; for full 360° rotation in 1, 2, and 3 planes.

With CHIKSAN Ball-Bearing Swivel Joints, you can design lines with any required degree of flexibility merely by arranging swivels in proper se-

quence. CHIKSAN Engineers will gladly assist you with recommendations based on over a quarter-century of experience in design, manufacture and application. It is more than likely that a standard CHIKSAN Swivel Joint will fit your special requirements. That means saving you time in designing and in getting into production...and the money it costs for trials, experiments, special tooling and expensive manufacturing. Play safe! specify CHIKSAN Ball-Bearing Swivel Joints.

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AND SUBSIDIARY COMPANIES

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CHIKSAN EXPORT CO. BREA, CALIFORNIA NEWARK 2, N. J.

**BALL-BEARING SWIVEL JOINTS FOR ALL PURPOSES**

When inquiring check CP 8638 on handy form, pgs. 2-3

**REPRESENTATIVES IN  
PRINCIPAL CITIES...**

## special construction features explain . . .

*longer tool life*

The reason why AIRETOOL products give longer service is because of their special construction features. AIRETOOL engineers are constantly checking why ordinary tube maintenance tools wear out.

This shop and field research helps them design tools strengthened at points of greatest wear to give you extra service life.

### expander

#### CONSTRUCTION FEATURES



The ball bearing thrust collar eliminates the danger of friction drag. The ball bearings are encased in a retainer and bear on separate ground raceways. Expanding rolls are tapered to produce unridged, parallel surfaces and uniform tightness.



Special construction features include a drill head which is kept cool under all scale conditions. This is accomplished by using a built-in device which sends the flushing agent through the motor to the drive shaft to the cutting edges. All moving parts of the durable motor are made of heat treated alloy steel.

### condenser cleaner

#### CONSTRUCTION FEATURES

Learn for yourself how much better AIRETOOL cleaners, expanders and accessory tools will meet your requirements. Write The AIRETOOL Mfg. Co., 308 S. Center St., Springfield, Ohio.



SPRINGFIELD, OHIO

There's an AIRETOOL Tube Cleaner and Tube Expander for every type of Tubular Construction.

Branch Offices:  
NEW YORK,  
PHILADELPHIA,  
CHICAGO,  
HOUSTON,  
TULSA,  
BATON ROUGE

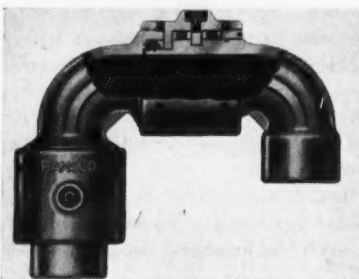
## PROCESSING EQUIPMENT

**Ball bearing fittings swivel 360° despite 15,000 psi, 225°F; also handle 750°F corrosives . . .**

single, double or triple combinations also made for low pressure duty at 225°F

**Uses:** Ball bearing swivel fittings, in single, double or triple swing combinations, for 360° rotation despite high or low pressure or high-temperature corrosive service.

Applications include: 1) Pressures up to 15,000 psi at 225°F, including pressure or vacuum lines; 2) Pressures up to 1000 psi at 225°F, and 3) High-temperature corrosive



Swivel joints made in 3/8 to 6" and 3/8 to 14" sizes

duty up to 1000 psi at 750°F, including steam, hot oil or asphalt; butane-propane or other liquefied gases; also sulphuric acids, many other acids and caustics.

**Features:** Adaptable to any piping situation requiring a flexible steel swing line, regard-

less whether the required movement is occasional or constant, and whether complete 360° turning or elimination of vibration is desired.

**Description:** In 3/8 to 6" sizes for high pressures and for high-temperature corrosive service. Low-pressure fittings range from 3/8 to 14".

**Source:** Rasmussen Manufacturing Company, Dept. CP, 12313 Industrial Ave., Hollydale, Calif. . . or for more information check CP 8640 on handy form, pages 2 and 3.

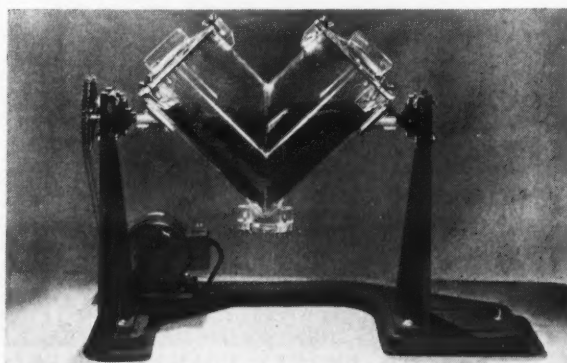
### Blending action can be studied through plastic shell . . .

results obtained on small twin shell blender show what to expect in production models

**Uses:** Blending tests or small-scale production.

**Features:** Transparent plastic shell permits observation of blending action. Results may be extrapolated to those which can be expected with large production units.

**Description:** Laboratory twin shell blender is made in 4 qt and 8 qt sizes. The cast aluminum base has an ex-



Transparent shell of test blender permits observation of what goes on inside

*Hotpack*

WE NOW OFFER  
**LABORATORIES**  
A COMPLETELY NEW SERVICE

ALL *Hotpack* APPARATUS

IS NOW

MADE • SOLD • SERVICED

BY OUR

FACTORY TRAINED

ENGINEERS

EXCLUSIVELY

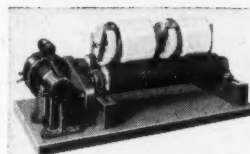


Send for Our New Catalog with Detailed Information on How This Service will Benefit You.

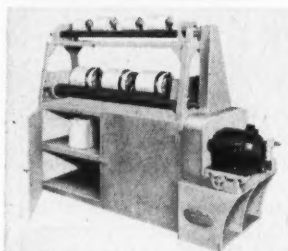
THE ELECTRIC *Hotpack* CO. INC.  
5033 COTTMAN AVE. • PHILA. 35, PENNA.

When inquiring check CP 8641 on handy form, pgs. 2-3

## Easiest Simplest Way to Grind Small Batches



WITH **ABBÉ**  
JAR ROLLING  
MACHINES



- Multiple Jars of Material—Wet or Dry—Processed Simultaneously
- Just Place Jars on Rollers—No Clamping or Fastening
- Handle All Size Jars or Bottles in One Operation
- To Remove Simply Lift Off Any Jar

Write for Catalog 63

Made with rubber-covered steel rollers of any desired length to handle single or parallel rows of jars, and in double or triple tiers for as many jars as are desired from 1 qt. to 6.6 gal. each. Built-in cabinet optional.

ABBÉ ENGINEERING CO.  
46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring check CP 8642 on handy form, pages 2-3

CHEMICAL PROCESSING

When inquiring check CP 8639 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

tendable frame built to accommodate either of these sizes. Shell is made of a heavy transparent plastic (standard), but other materials of construction are available. Dust-tight charge and discharge connections have covers pivoted on one side.

Assembly includes a 1/20 hp gearhead motor which operates on 120V, 50/60 cycles AC. Chain and sprocket drive produces 32 rpm.

**Source:** Addition to line of twin shell blenders made by The Patterson-Kelley Co., Inc., Dept. CP, 14 Burson St., East Stroudsburg, Pa. . . or for more information check CP 8643 on handy form, pages 2 and 3.

**Furnishes 10 gpm of clean, filtered water via 1/2" standard pipe line . . .**

weighs less than 5 lbs; withstands 100 psi; has permanent metallic filter element

**Uses:** Hooked to 1/2" standard pipe line, one of these units will furnish up to 10 gpm of clean, filtered water; or two units may be connected for 20 gpm.

**Features:** No filter pads or replacements; unit is built around a permanent metallic filter element. Removed dirt and foreign matter are fully visible through a transparent plastic case which withstands a max temperature of 240° F.

When cleaning is necessary, entire filter body is removed by turning a single nut. Filter element is then rinsed clean in tap water and replaced.

There is no metal screen. Entire unit weighs less than 5 lbs. All water is mechanically filtered, and filter element will not change shape under water pressure.

### Description:

Metallic filter element is composed

of microscopic bronze spheres, formed into a filter element by advanced metallurgical method. Gaskets are good grade of natural rubber. Pipe and fittings are bronze. Filter withstands pressure of 100 psi.

**Source:** Oscar Fisher Company, Inc., Dept. CP, 109 Worth St., New York 13, N. Y. . . or for more information check CP 8644 on handy form, pages 2 and 3.

**Economizer tubes shaped like diamonds, aid steam flow**

Diamond-shaped water tubes of economizer described in 8-page bulletin allow steam to flow smoothly over heat transfer surfaces. Similarly, all surfaces are exposed to cleaning blast from traveling soot blowers. Other features include ease of disassembly, separate supporting and jointing flanges, and staggered tube arrangement for easy visual inspection. Economizer is fully specified in Bulletin 169 issued by The Green Fuel Economizer Company, Inc., Dept. CP, Beacon, N. Y. When inquiring specify CP 8645 on handy form, pages 2 and 3.

# important shippers say: YOU CAN'T **BEAT** HACKNEY STAINLESS STEEL **DRUMS**



"Stainless steel construction insures long life and utmost resistance to corrosion."

"Exceptionally lightweight — and exceedingly strong, too."

"Can't be excelled for shipping many chemicals and food."

"Absolutely liquid-tight — no chance for leakage in or out."

"Very attractive in appearance."

"Crack and crevice-free interior leaves no place for foreign matter to lodge."

"Completely removable head — makes emptying and cleaning easy."

All these features make Hackney Stainless Steel Drums the choice of hundreds of shippers. These straight-side drums are returnable containers, promising many years of low-cost service. They have the specially formed Hackney welded chime construction which insures a smooth bottom, so easily and positively cleaned. Thus, the advantages of easy cleaning and sanitation make Hackney Stainless Steel Drums the logical containers for many chemical and food shippers.

*Your choice of two types of closures—the famous quick-acting Toggle-tite or bolt-type closure. Send today for full details.*



### Hackney Removable Head Seamless Aluminum Bilged Barrels

These Hackney barrels are ideal containers for many types of products—foods, chemicals, etc. They are lightweight, sturdy and economical.

Both Hackney drums and barrels are made in mild steel.

## Pressed Steel Tank Co.

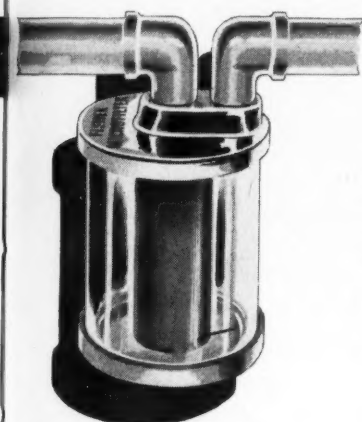


Manufacturers of Hackney Products

1463 S. 66th St., Milwaukee 14 • 1387 Vanderbilt Concourse Bldg., New York 17 • 235 Hanna Bldg., Cleveland 15  
936 W. Peachtree St., N.W., Room 126, Atlanta 3 • 208 S. LaSalle St., Room 796, Chicago 4 • 568 Roosevelt Bldg., Los Angeles 14

**CONTAINERS FOR GASES, LIQUIDS AND SOLIDS**

When inquiring check CP 8646 on handy form, pgs. 2-3



Plastic case withstands 240° F

# Airco Nitrogen gives positive Protection against Air Damage

For deaerating, processing, storing and packaging fats and oils, in the packaging of dehydrated foods, and to provide an inert atmosphere, use Airco Nitrogen. It gives positive protection to practically any material susceptible to oxidation and corrosion by air.

For more than a quarter century Airco has been one of the world's leading producers and purifiers of nitrogen — as well as other atmospheric gases: oxy-

gen, argon, helium, neon, krypton, and xenon . . . all known throughout industry for their high purity, unvarying uniformity and dependable qualities. This uniformity and adherence to specifications of Airco Nitrogen are definite factors contributing to its satisfactory use.

To meet your requirements, Airco can supply nitrogen of specific types. Airco Nitrogen is supplied in 224 cu. ft. cylinders, or, if your plant is equipped with an internal pipeline, delivery in bulk may be made in Airco trailers. For further information write your nearest Airco office.

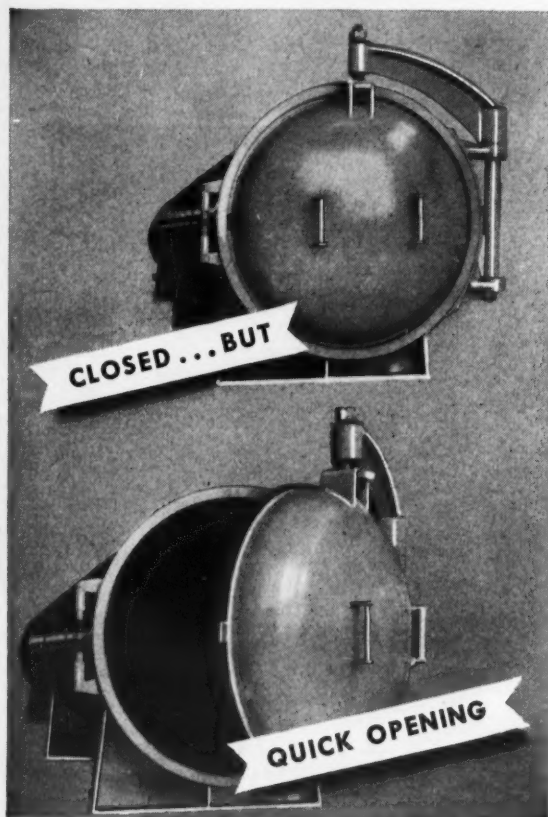


## AIR REDUCTION

Offices in All Principal Cities

HEADQUARTERS FOR OXYGEN, ACETYLENE AND OTHER GASES...CARBIDE...GAS WELDING AND CUTTING APPARATUS AND SUPPLIES...ARC WELDERS, ELECTRODES AND ACCESSORIES

When inquiring check CP 8647 on handy form, pgs. 2-3



# Look into this in a Hurry!

Blaw-Knox Quick Opening Doors for curing chambers, vulcanizers, and similar equipment, are *quick—tight—boltless*. In diameters up to 10 ft., they may be used on pressures up to 250 psi. They are boltless and rim-locking.

This is only one of a long line of Blaw-Knox standard equipment items for the Process Industries. See Blaw-Knox Bulletin No. 2307.

PROCESS EQUIPMENT DEPARTMENT

## BLAW-KNOX

DIVISION OF BLAW-KNOX COMPANY

2090 FARMERS BANK BLDG., PITTSBURGH 22, PA.

Other Offices in Principal Cities

When inquiring check CP 8648 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

**Pump solvents, distillates up to 1600 gpm . . .**

pump has extra deep stuffing box; packing rings accessible through side-opening cradle

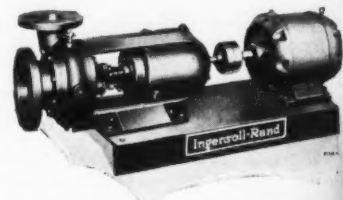
**Uses:** Designed particularly for wide range of medium duty conditions frequently found in refineries and process industries. Suitable for reflux pumping and transfer service in the handling of propane, butane, gasoline, and other light distillates.

**Features:** Unit has steel casing, heavy flanges, deep water-cooled stuffing box, smothering gland, ring oil lubricated ball bearings, heavy cradle-shaft and bearing, hook type shaft sleeve, sturdy channel steel baseplate and an all-metal coupling.

**Description:** Pump is built in 5 different sizes, single and two stage. Sizes range from 3/4 to 5" discharge with capacities up to 1600 gpm and heads up to 250'. Normal hp range is from 1/4 to 75.

Pumps may be driven by direct electric motor, electric motor v-belt, turbine through reduction gears, direct turbine, v-belt gasoline engine or direct gasoline engine.

**Source:** CRVR cradle-mounted centrifugal pumps are built by Ingersoll-Rand Co., Dept. CP, Phillipsburg, N. J. . . . or for more information check CP 8649 on handy form, pages 2 and 3.



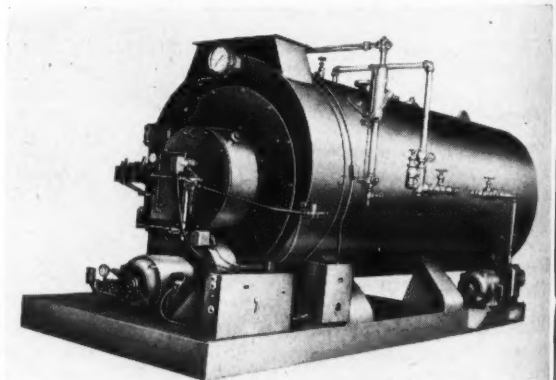
Motor-driven pump

**Oil, gas, or combination fires steam generators . . .**

units are completely equipped and fully assembled

**Uses:** Line of steam generators can be fired with light oil, heavy oil, gas, or combination gas and oil for delivering steam at pressures from 15 to 200 psi.

**Features:** Units are fully assembled, piped, wired, and test fired prior to shipment. Integral burners, automatic



No stack, only simple flue vent required for steam generator operation

safety and operating controls, steam trim, and valves comprise a complete unit.

**Description:** Entire boiler surface of Model C300 steam generators is fibre glass insulated and fitted with a metal

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

jacket. Units are ready to operate when connected to water, steam, fuel, and electric lines.

No stack is required for operation; a simple flue vent is all that is needed to conduct exhaust gases out of doors. Local regulations, however, may interfere with this procedure.

**Source:** Product of Cyclotherm Corp., Dept. CP, Oswego, N. Y. . . . or for more information check CP 8650 on handy form, pages 2 and 3.

### 100% efficient for recovering dust in 12-micron range . . .

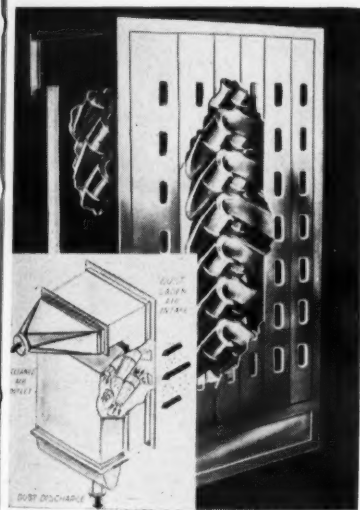
collector is fabricated from various alloys to meet specific requirements of diversified industries

**Uses:** Removes dust from air, venting cleaned air back to working areas. Suitable for recovery of chemical processing dusts: fly ash, lime dust, abrasives, etc.

**Features:** Collector has demonstrated 100% efficiency in recovering dust of 2.54 specific gravity in the 12-micron range, even at high temperatures.

#### Description:

Dustex is a multiple cyclone-type dust collector. Units are fabricated of stainless steel, carbon steel, abrasive-resistant steel, and other alloys to meet specific requirements in diversified industries. Tubes are 5" diameter. Design of the inlet and internal air passage prevents building-up, or plugging of dust while handling



Multiple cyclone-type dust collector

sticky or fibrous materials. Absence of filters and other combustible materials eliminates fire damage to the equipment.

**Source:** Product of the Dustex Corporation, Dept. CP, 1758 Walden Ave., Buffalo 21, N. Y. . . . or for more information check CP 8651 on handy form, pages 2 and 3.

### Catalog simplifies selection of proper spray nozzle

Fourteen-page, 2-color catalog is designed to simplify selection of proper spray nozzle for specific type of application. List of recommended uses is indicated for each type of nozzle. Spray characteristics are described, and construction features explained in detail. Complete dimension data is listed with explanatory illustrations. Performance ratings are charted for recommended pressures. Includes strainers and adapters.

Catalog 30 is issued by Industrial Division, Delavan Mfg. Co., Dept. CP, 3009 Sixth Ave., Des Moines, Iowa. When inquiring specify CP 8652 on handy form, pages 2 and 3.

# ERIEZ ATOMAGNETS HERE!



## 3 NEW MODELS

"EXTRAPOWER"

"ULTRAPOWER"

"SUPERPOWER"

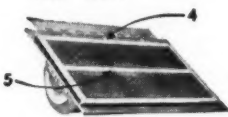
### Five New Features!

1 Riveted construction adds rigidity . . . increases structural strength.

2 Continuous hinge means easy and lasting installation.



3 Cover adds to longitudinal stiffness . . . prevents tampering and accumulation of iron on backs of castings with consequent shorting of magnetic circuit.



4 Insulation confines magnetic strength to working surface . . . no bleeding to surrounding areas.

5 Flush air gap prevents gathering of fine iron which can short out magnetic field.

Eriez ATOMAGNETS, bristling with super magnetic strength, are here to blast your tramp iron troubles. Nothing can compare . . . strength for strength . . . size for size . . . dollar for dollar . . . with revolutionary Alnico ATOMAGNETS.

Look at the ATOMAGNET. Sleek, rugged, stronger, lighter in weight, sporting five new features you cannot get with ordinary permanent magnets. And it COSTS NO MORE!

Ten years of magnet research . . . of invaluable practical experience . . . brings you a package of magnetic dynamite.

Three great models to choose from: "Extrapower," "Ultrapower," "Superpower." Each in a full range of sizes.

For chutes, hoppers, spouts . . . over inspection tables, moving belt lines . . . in operating or original equipment.

To learn more about ATOMAGNETS, mail coupon.

For Lightweight Applications, Ask About the Eriez Model "C" Magnet

ERIEZ MANUFACTURING COMPANY

201 State Street, Erie, Pa.

Send me information on ATOMAGNETS

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Title \_\_\_\_\_

Company Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



MANUFACTURING CO.  
ERIE, PA.

PRODUCERS OF MAGNETIC EQUIPMENT

When inquiring check CP 8653 on handy form, pgs. 2-3

# IRON BULWARK

## AGAINST CORROSIVE FLUIDS

### Fairbanks® all iron gate valves

...are made of high-test alloy iron to withstand the action of many of the strongest chemicals such as concentrated sulfuric acid, alkalis, aniline oils, sodium and potassium cyanides and creosote. These iron body valves give long service under the severe operating conditions that exist with use of these destructive agents.

Fairbanks All Iron Gate Valves—like those in all Fairbanks lines—are low in maintenance cost, easy to operate and long-lasting in service... a real answer to cost-cutting needs today.



Fig. 0310  
ALL IRON GATE VALVE  
150# SWP 225# WOG  
Non-Rising Stem • Solid  
Wedge • Taper Seat  
1/2" - 2" Sizes

Fig. 0904  
ALL IRON GATE VALVE  
125# SWP 200# WOG  
Solid Wedge • Taper Seat •  
Malleable Iron Seat Rings  
2" - 12" Sizes



Fig. 0418  
IRON BODY U-BOLT  
GATE VALVE  
150# SWP 225# WOG  
Bronze Mounted • All  
Iron Rising Stem • Solid  
Wedge • Taper Seat  
1/2" - 4" Sizes

For handling other types of corrosive fluids such as dry carbon dioxide, ethyl acetate, malt beverages, propane and butane gas use FAIRBANKS BRONZE SOLDER END and FAIRCO-BRAZE (silver-brazed) VALVES.

For full details consult your distributor or write direct

THE

## Fairbanks

COMPANY

393 LAFAYETTE STREET • NEW YORK 3, N. Y.

Branches: New York 3 • Pittsburgh 22 • Boston 10 • Rome, Ga.

CASTERS • TRUCKS • VALVES • DART & PIC UNIONS

## PROCESSING EQUIPMENT

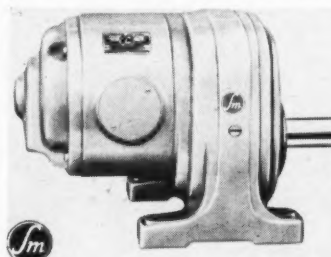
**Direct streams of liquid cannot penetrate electric motor . . .**

baffles on end bells admit air but bar liquids

**Uses:** Line of electric motors designed for horizontal floor mounting is suited for locations which are subject to direct streams of water or other liquids.

**Features:** One-piece cast end bells with integrally cast baffles provide splash protection in all kinds of industrial sites.

**Description:** Motors are built with single or double reduction gears providing speeds from 20 to 780 rpm, and in ratings from 1/2 to 15 hp. One piece cast iron stator frames and end



Splashing liquids cannot enter motor

bells permit free passage of ventilating air while preventing splashing liquids from reaching interior of motor. Seals are incorporated on shaft ends, assuring positive protection against entry of liquids into the bearing housings.

**Source:** Slo-Speed Geared Electric Power Drives in splash-proof design are manufactured by Sterling Electric Motors, Inc., Dept. CP, Los Angeles, Calif. . . . or for more information, check CP 8655 on handy form, pages 2 and 3.

**Return stroke of cylinders made by air . . .**

double-acting type uses 1/2 as much air as conventional types

**Uses:** Double-acting air cylinder for such applications as light punch and die work, etc.

**Features:** Return stroke is made by means of air. There is no residual pressure on forward stroke, and return stroke is made at 60% efficiency with the use of a 3-way valve—substantiated by field applications. Cylinder operated by a 3-way valve allows enough throttling to provide for control of work and of return stroke.

After initial charge of air, cylinder operates on the same number of cubic feet of air as spring-return types.

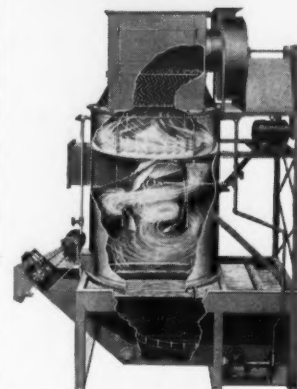
## SUPPRESS DUST WITH WATER

and reduce every particle to harmless sludge!

Whiting Hydro-Clone—Type CV—precipitates heavy particles in the pre-cleaner . . . then removes the fine particles in the axial tube and disintegrator section directly above this tube. The resulting sludge is directed to an auto-ejector type tank, and all water is recirculated.

The water also removes obnoxious gases and dangerous fumes.

Hydro-Clone Equipment has no cloth screens or bags to clean, burn, or wear out . . . no spray nozzles to clog . . . no moving parts. Capacities from 2,000 to 40,000 cfm. Write for Bulletin FY-162. Also available in low headroom type—Bulletin FY-165.

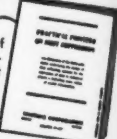


Cutaway view showing Hydro-Clone system of blading and baffling.

## WHITING CORPORATION

15667 Lathrop Ave.  
Harvey, Illinois

FREE  
New booklet of  
Practical Information  
on Dust  
Collection.  
Ask for Bulletin  
FY-142.



When inquiring check CP 8656 on handy form, pgs. 2-3



## Save 3 Ways

SIMPLIFIED INSTALLATION  
LOW MAINTENANCE • LONG SERVICE LIFE

"GOODITE" PIPE has extreme flexibility; a tube that is highly resistant to abrasive wear and the permeation of liquids or gases; and a carcass that will not kink or collapse. For either suction or discharge. Sizes 4" to 12".

"KEMITE" DUCT has same characteristics as "Goodite", but made in smaller sizes — 3/4" to 4".

"FLANG-LOK" FLANGE designed to simplify installation of "Goodite" Flexible Pipe and "Kemite" Duct, and to provide a positive, non-metallic seal at all connections. Easy to attach and tighten. Steel or cast iron.

Contact our nearest branch for complete information, recommendations, and prices based on your requirements.



## GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.  
Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • Detroit • St. Paul • Los Angeles  
San Francisco • Seattle • Portland • Salt Lake City • Denver • Houston • Distributors in Other Principal Cities

When inquiring check CP 8657 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 8654 on handy form, pgs. 2-3

SING

## Reduce Spoilage with NILES Lacquer-Lined STEEL DRUMS



TIGHT HEAD OR  
REMOVABLE HEAD



If you put your spoilage losses under the microscope, it may be that your containers will show up as a contributing factor. Obviously, container failure costs more in content spoilage than in replacement of the container itself.

Perishables . . . stored and shipped in NILES Lacquer-Lined Steel Drums . . . are doubly protected. Because of the great strength and long life of steel and the liquid-tight NILES drum construction, there is a minimum of spoilage from without the drum. NILES long-life, durable-finish lacquer linings add equally to minimum spoilage from within. These lacquer linings are neutral to a wide range of materials in both the chemical and food fields . . . protecting content color, flavor and purity from the filling to the emptying of the drum. These drums are easy to clean, easy to keep clean and sanitary.

Until your spoilage losses have reached an absolute minimum, you owe it to your operating profits to investigate NILES Lacquer-Lined Steel Drums. Write us.

**NILES STEEL PRODUCTS DIVISION  
REPUBLIC STEEL CORPORATION  
NILES, OHIO**



**NILES**  
METAL BARRELS AND DRUMS

When inquiring check CP 8663 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

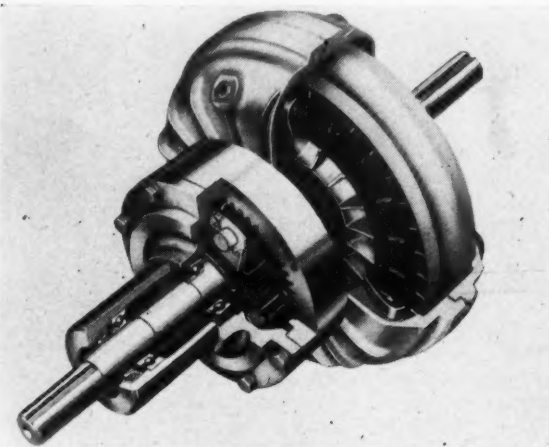
### Hydraulic coupling, planet gears are combined in drive . . .

solves problem of maintaining constant tension and lineal speed on winding operations

**Uses:** Drive eliminates jerkiness on winding operations by automatically maintaining predetermined speed and tension without intermittent adjustment.

**Features:** Replacing adjustable slip clutches, drive combines hydraulic coupling with planetary gears, the ring gear being fixed to impeller or pump of the hydraulic coupling. Planet gear carrier is fixed to runner of the coupling, while sun gear is fixed to the output shaft.

**Description:** In operation, automatic "slip" of the coupling reacts with the gear set against varying torque and speed requirements of the winding spool. As torque load increases or decreases, drive changes output torque in direct proportion to load change, meanwhile maintaining



Hydraulic feature of clutch permits operation under some stall conditions

level of horsepower. Result is said to be an extremely smooth, fast start, providing continuous operation at predetermined lineal speeds and tension. Hydraulic feature also is said to permit operation under some conditions of stall without harm to either prime mover or clutch.

On applications where controlled tension is necessary despite changes in materials, weights, or speeds, a variable speed drive is added. When predetermined speeds and tensions have been set, further adjustments are unnecessary.

**Source:** Hydro-Wynd drives are manufactured by Twin Disc Clutch Company, Dept. CP, Racine, Wis. . . . or for more information, check CP 8664 on handy form, pages 2 and 3.

### Uses dry adhesive, blends it with water, keeps supply at any set viscosity . . .

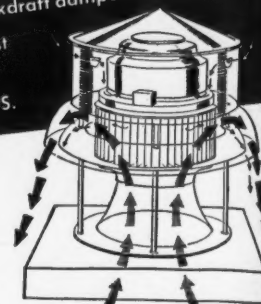
cuts adhesive costs, saves labor, avoids spillage

**Uses:** Provides a constant reservoir of ready-to-use liquid adhesive of pre-determined, constantly controlled viscosity in quantities up to 100 gallons. Permits use of adhesive in dry form by feeding it into solution and blending it with water, which is automatically fed in necessary proportions.

**Features:** Great savings in adhesive costs, reported to be as high as 60% in some cases. Machine has a set of

## NEW GALLAHER Air-Van Power Exhauster

- Motor out of the air stream.
- Completely weatherproof and self contained—requires no penthouse.
- Positive acting squirrel-cage fan —no backdraft damper required.
- Low installation cost direct connected.
- CERTIFIED RATINGS.



Pat. 2188741  
Pat. Pend.

### Safely Exhaust Moisture and Corrosive Fumes

Safe! Positive! With motor out of airstream operating efficient squirrel cage fan, you safely remove explosive and corrosive fumes without danger of motor damage. Motor hood is under negative pressure of fresh air passing through hood to prevent formation of explosive concentrations. Capacities are 100 - 12,000 CFM handling static pressures to 1 3/4".

For full information contact your Gallaher representative or write The Gallaher Co., 4106 Dodge Street, Omaha.

**The GALLAHER Company**  
Omaha, Nebr. Owatonna, Minn.

When inquiring check CP 8665 on handy form, pgs. 2-3

## PRINT as you glue... as you seal corrugated shipping cases

### WITH PACKOMATIC AUTOMATIC CASE IMPRINTER

Fibre shipping cases automatically packed, glued, sealed, counted, coded and imprinted with up to 8 lines on any or all panels—this can be yours to help reduce operating costs, increase earnings, lower prices to the consumer. Get facts about completely automatic packaging by PACKOMATIC.



PACKOMATIC Case  
Gluer-Sealer, above.  
Imprinter, right.

**PACKOMATIC**

J. L. Ferguson Company, Rt. 52 at Republic Ave., Joliet, Illinois

When inquiring check CP 8666 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

visual signals which indicate condition and the range of adhesive it is preparing. The adhesive is never too thick, nor does it become too thin. By means of a simple hand-setting control dial, the end ready-to-use adhesive product is made to whatever consistency desired.

Addition of water by hit or miss methods, or addition of heavy ready-to-use liquid is not required. Great savings in labor are secured. Time consuming trial and error methods of diluting and mixing are avoided. There is no mess or spillage and there are no drums to be cleaned and returned. Bags of dry adhesive stack and handle more easily than drums.

**Description:** Machine is in reality an automatic control system. It maintains a constant reservoir. Amount of adhesive contained in this reservoir is controlled by high-low level controls which can be set to the requirements of the user. Once level is determined, the machine will always have that amount available.

Machine is provided with manual drain-off valve and is also furnished with a connection for various hose or pipes which could drain off the prepared adhesive for use anywhere within plant.

If a certain amount of material is drained off for use, the machine automatically replenishes that amount and brings reservoir up to desired capacity.

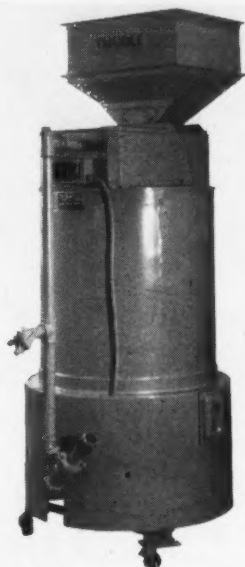
100 lbs of dry adhesive makes between 250 and 500 lbs of ready-to-use adhesive, or between 30 and 60 gallons.

**Source:** Visco-Mat machine is a development of Triangle Package Machinery Co., Dept. CP, 6635 W. Diversey Parkway, Chicago 35, Ill. . . . or for more information check CP 8667 on handy form, pages 2 and 3.

### **Senses pressure differentials for recording, alarm service**

Units which measure pressure and flow differentials and generate pneumatic loading pressures directly proportional to the differentials impressed upon their measuring elements are featured in 4-page colorful bulletin. Loading pressures may serve as control signals for automatic control systems, and for actuating recording instruments. Pressure or flow differentials ranging from 100" water column to 25 psi, at static pressures up to 300 psig, are measurable. Standard output loading pressure ranges are 3 to 15, 0 to 30, or 0 to 60 pounds.

Applications, construction features, operating characteristics, and accessories are contained in illustrated Bulletin 2250, issued by the Hagan Corporation, Dept. CP, Hagan Bldg., Pittsburgh 30, Pa. When inquiring specify CP 8668 on handy form, pages 2 and 3.



Maintains predetermined adhesive supply



## "MULTIPLE UNIT" HEATING UNITS

for special processes  
requiring controlled heating

These units consist of coils of high grade nickel chromium wire in refractory shapes. A diversity of sizes and shapes permits many varied applications. Temperatures up to 2000 F. may be obtained.



### CONTROL YOUR HEATING PROCESS WITH A HEVI DUTY TAP-CHANGING TRANSFORMER

Designed specifically for changing the voltage to that required to control the temperature of "Multiple Unit" heating units. Any practical number of output voltage steps may be obtained to provide a precise range of control.

Send us your specifications or request for data.

## HEVI DUTY ELECTRIC COMPANY

LABORATORY FURNACES TRADE MARK **MULTIPLE UNIT** ELECTRIC EXCLUSIVELY

MILWAUKEE 1, WISCONSIN

When inquiring check CP 8669 on handy form, pages 2-3



An excellent double conveyor checkweighing operation with product on lower belt and empty containers on top belt. High speed, end tower EXACT WEIGHT Scales are used.

## Sound Packaging-an Important Link...

If you strive for higher productivity at lower cost study your handling and packaging operations. Experienced engineers say 50% of all productive labor in many products today is occupied in handling and packaging. When labor costs make such claims it's time to apply adequate cost control measures. Plan wisely... equip well... unite your plan, equipment and personnel into one smooth operation. When the volume packaging is done scales are necessary for uniformity. They too should fit the job. The fact that EXACT WEIGHT Scales are at work in more than 54 major industries on thousands of production lines ranging from simple hand check-weighing to fully automatic operation is evidence we believe of their value to these industries. Write for full details for your business.

Sales  
&  
Service  
from  
Coast  
to  
Coast

# EXACT WEIGHT SCALES

## Industrial Precision

THE EXACT WEIGHT SCALE COMPANY

31 W. Fifth Ave., Columbus 8, Ohio  
2920 Bloor St., W, Toronto 18, Canada

When inquiring check CP 8670 on handy form, pgs. 2-3

Page 78

## PROCESSING EQUIPMENT

**molten at 435°F., for monel, aluminum, inconel, etc...**

withstands 800-hr salt spray bath, also alkaline, acid or atmospheric corrosion

**Uses:** Wire solder and flux for use on aluminum and most metals where conventional solder does not stand up. For soldering stainless steel, inconel, monel, etc.

**Features:** Highly resistant to atmospheric, alkaline acid corrosion. Tests show that this solder withstands an 800-hr salt spray bath without deterioration, manufacturer reports.

Highly fluid; molten at 435°F. Forms a close-grained water-tight joint, even on difficult metals such as aluminum, when applied with manufacturer's All Metal flux. Used with this flux, it displays definite affinity for a majority of metals.

Tensile tests are said to indicate a bond "2 to 3 times greater than 50/50."

**Description:** Solder is a non-reactive metallic combination, extruded in 1/8" wire, wound on spools. Used with ASMC flux.

**Source:** Farrelloy Company, Dept. CP, 1260 N. 26th St., Philadelphia 21, Pa. . . or for more information check CP 8671 on handy form, pages 2 and 3.

## Sensitivity of temperature control in stainless electric oven is plus-or-minus 1/2° C . . .

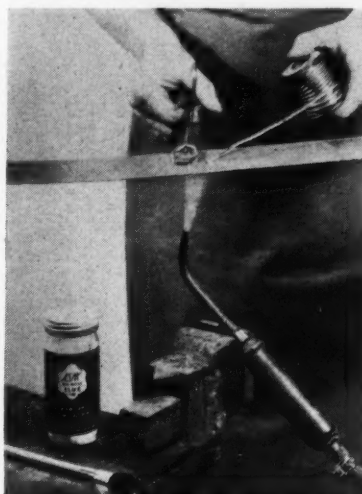
temperature is more uniform because heating element is spread over entire bottom compartment

**Uses:** Baking, drying or preheating. Used for tempering or drawing of metals, annealing of glass, work with plastics, numerous other applications requiring dry heat at temperatures to 1200°F.

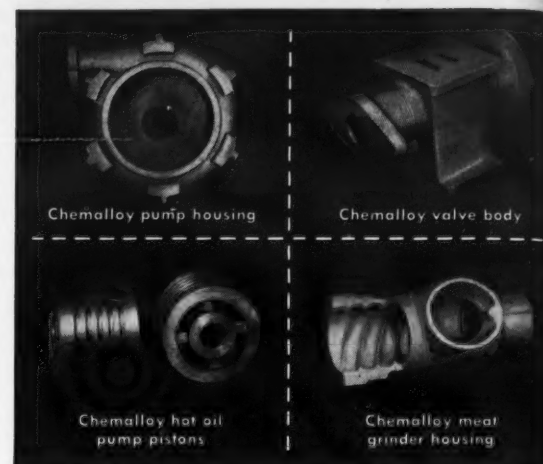
**Features:** Temperature is automatically controlled with sensitivity of plus-or-minus 1/2°C. Stainless steel construction. Heating element is spread over entire bottom compartment to achieve improved uniformity of temperature.

**Description:** Electric gravity-convection ovens have double-walled housing and door. All six sides contain 5" of dual insulation that will not settle or deteriorate with age. V-shaped reinforcements prevent distortion of housing. Air enters through intake ports in bottom of oven and passes through a perforated diffuser plate. It leaves through double exhaust ports at top. These ports have stainless steel slides to control exhaust.

Resistance wire of heating element is helically coiled and supported by means of grooved refractories mounted on stainless steel supports. The refractories will not warp, are impervious to moisture and common acids, and with-



Forms a close-grained, water-tight joint



## To Combat CORROSION ... Specify CHEMALLOY\*

Chemalloy is not just one alloy, but a group of alloys... each developed to combat certain corrosive conditions. Wherever your corrosion problems require stainless, Ni-Resist\* or other high alloys, investigate Chemalloy. Write for Bulletin T-171. Electro-Alloys Division, 1928 Taylor Street, Elyria, Ohio.

\*Reg. U. S. Pat. Off.

AMERICAN  
**Brake Shoe**  
COMPANY

ELECTRO-ALLOYS DIVISION  
ELYRIA, OHIO

When inquiring check CP 8672 on handy form, pgs. 2-3



You are SURE of instant, unfailing safeguards when you install EVERLASTING VALVES with Pendulum Stop on your fire protection system. The valve action is immediate and positive... the flow is full and unimpeded... there's no danger of sticking, binding or wedging. Made in all sizes from 1 in. to 8 in. and may be arranged for control from any location. Write for Bulletin E-52C describing these valves in detail.

EVERLASTING VALVE CO., 49 Fisk St., Jersey City 5, N. J.

Trade-Mark "EVERLASTING"—Reg. U. S. Pat. Off.



When inquiring check CP 8673 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

stand 2600°F. All wiring is complete and totally enclosed, meeting NEC standards.

Each oven contains two stainless steel wire shelves that are removable and adjustable.

In the Series A and B ovens, heat is controlled by a hydraulic expansion type unit. Series C uses an electronic



Electric, automatically controlled oven is constructed of stainless steel throughout

indicating and controlling pyrometer plus an iron-constantan thermocouple. All contacts are silver, totally enclosed. Line load is broken through an enclosed magnetic contactor, UL-approved.

Two large pilot lights and an on-off switch are standard. A red light indicates that unit is in operation; a green light is lit during the periods when heating element is being energized.

Series A units are for temperatures to 800°F, Series B to 1000°F and Series C to 1200°F. Temperature indicator can be calibrated in Fahrenheit or Centigrade. Sizes of each series range from 12" wide x 12" high x 12" deep to 24" wide x 20" high x 20" deep (all inside dimensions). All models, except the smallest Series A, operate on 230 volts AC.

Manufacturer can furnish ovens of other sizes, temperature ranges and voltages. Any model can be equipped with circulating fan and motor.

Source: Hi-Heat ovens are made by Modern Electric Laboratory, Dept. CP, 306-308 W. 69th St., Chicago 21, Ill. . . . or for more information check CP 8674 on handy form, pages 2 and 3.

### Tabulates specific gravities, percent solids of pulps

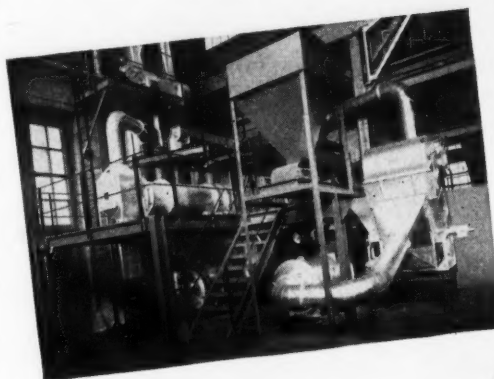
Pulp density, per cent solids, and conditioning times required for given volumes of pulp can be quickly and accurately determined through use of 2 bulletins. Bulletin S1C-B covers pulps ranging from 5% solids at specific gravity 1.40 through pulps of 68% solids at specific gravity 3.20. Bulletin S1C-B1 covers low-range specific gravity pulps from 5% solids at specific gravity 1.35 through pulps of 68% solids at specific gravity 1.85. Helpful wherever water-to-solids relationship is an operating factor.

Bulletins feature a pulp density scale. Issued by Dept. 616 of the Denver Equipment Company, Dept. CP, Denver 17, Colo. When inquiring specify CP 8675 on handy form, pages 2 and 3.

# HOW SHOULD YOU DRY MATERIALS?

# HOW SHOULD YOU COOL MATERIALS?

# HOW SHOULD YOU ROAST MATERIALS?



## GET THE RIGHT ANSWER WITH A TEST RUN IN THE LINK-BELT DRYER LABORATORY

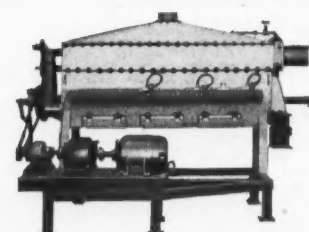
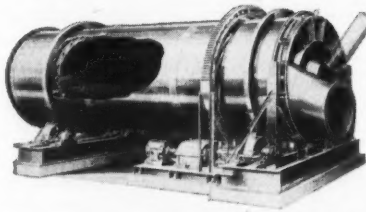
What equipment should you have? What are the best procedures? How can you improve results? The Link-Belt Dryer Laboratory was built to give you positive answers to questions about drying, cooling, roasting, processing.

A test run, without obligation, can be arranged at your convenience. Simply call your nearest Link-Belt plant or office.

May we send you Catalogs No. 1911-A and 2209?



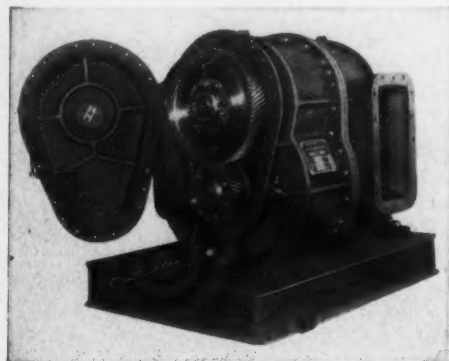
**LINK-BELT DRYERS • COOLERS • ROASTERS**



**LINK-BELT COMPANY** Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

When inquiring check CP 8676 on handy form, pgs. 2-3

# The **STANDARD** **DAIRE** PRECISION BUILT *Axial Flow* **BLOWER** ~



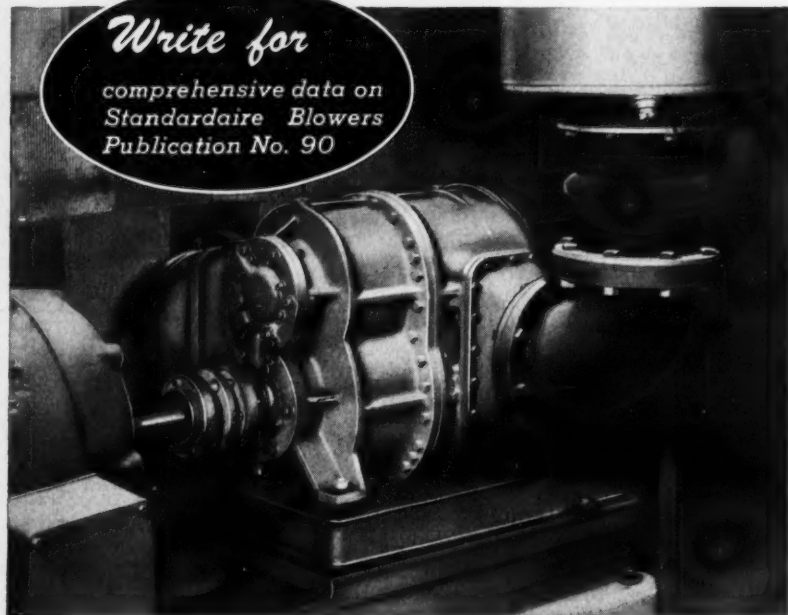
Here's another important design feature of the Standardaire Blower—**HEAT TREATED ALLOY STEEL TIMING GEARS**—generated and shaved to extreme accuracy for quiet operation.

THESE helical gears keep the cycloidal form, screw type rotors of the Standardaire Blower in timed relation. There is no wind-up

in the shafts between the rotors and gears as a very small percentage of the in-put power goes through the timing gears. The male or main rotor does the work and consumes the power; the female rotor acts simply as a valve or gate—further evidence of the finer features found only in the Standardaire Blower. The Standard Stoker Co., Inc. Dept.—C 16 Lexington Ave., New York 17, New York.

*Write for*

comprehensive data on  
Standardaire Blowers  
Publication No. 90



• Typical installation of a Standardaire Blower as installed in a malting plant.

**THE STANDARD STOKER CO. • INC. •**

**Standard Stoker**



**NEW YORK • CHICAGO • ERIE • YORK • MONTREAL**

When inquiring check CP 8677 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

**Rotary pumps conform to Underwriters' Lab specifications . . .**

pass rigid tests for approval on oil burner service

**Uses:** Rotary pumps are suitable for industrial oil burner service demanding sizes of  $\frac{3}{4}$ ,  $1\frac{1}{2}$ , 3, and 5 gpm.

**Features:** Pumps are available in either the packed box or mechanical seal designs, with or without relief valve. The 5 gpm size is foot mount-



Pumps bear Underwriters' approval

ed; other sizes are flange mounted. All sizes have been tested and approved for oil burner service by Underwriters' Laboratories, Incorporated.

**Description:** Pumps conform to the Underwriters' standards for compact practical design, reliability, durability, ease of installation, and freedom from adjustment or repair. There are only slight modifications in construction from the standard fitted Series K pumps of the same sizes. Approved pumps are identified by the letters "R" or "RV" stamped on face plate casting.

**Source:** Roper Rotary Pumps, Series K, are products of the Geo. D Roper Corporation, Dept. CP, Rockford, Ill. . . or for more information, check CP 8678 on handy form, pages 2 and 3.

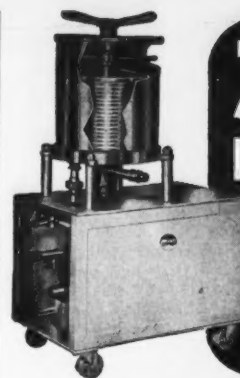
**Weld band saw blades on the spot . . .**

25-lb unit eliminates brazing; operates automatically

**Uses:** For on-the-spot welding and annealing of saw blades up to  $1\frac{1}{2}$ " in width. Makes smooth strong welds in joining saw blades to fit any size machine.

**Features:** Compact and simple to use. Quick, accurate alignment of blade ends is made possible by cam operated jaws. Brazing is eliminated, as is the usual delay in repairing broken bands. Band sawing machines equipped with this welder can perform internal sawing operations, as blade can be rewelded at machine after threading through the work.

**Description:** Fully automatic welder, with all controls clearly marked, is of rustproof, welded steel construc-



**ERTEL CYLINDER TYPE**  
*Positive Seal*  
**DISK FILTER**

1. FILTERING ELEMENTS are independently tightened to provide positive seal.

2. OUTER CYLINDER is closed by separate handwheel to prevent drippage or evaporation.

★ This multi-purpose filter will operate with a lesser number of sheets than its rated capacity if so desired. Unit is arranged to make reloading and cleaning as easy as possible. Rigidly constructed inlet and outlet rings insure a positive seal and thus eliminate the danger of bypassing unfiltered liquid. Fully illustrated in bulletin ECD-1 which gives complete specifications.

**USES:** Drugs, Cosmetics, Lotions, Perfumes, Wines, Whiskies, Cordials, Rums, Cider, Extracts, Water, Syrups, Hospital Supplies, Plating Solutions such as copper, nickel, chrome, tin, Chemicals, Antiseptics, etc.

**ERTEL ENGINEERING CORPORATION**  
**KINGSTON NEW YORK**

New York City Sales: 40 West 48th Street, N. Y. 19, N. Y.

**ASBESTOS FILTER SHEETS • ASBESTOS SHEET FILTERS  
CYLINDER TYPE DISC FILTERS • PYROGEN FILTERS  
VACUUM BOTTLE FILLERS • PUMPS • MIXERS • CAPPERS**

When inquiring check CP 8679 on handy form, pgs. 2-3

*Murphy* **PARAGON "C"**

**A SMALL COMPRESSED AIR SEPARATOR**

**GUARANTEED**

**TO REMOVE THE LAST TRACE OF MOISTURE,  
OIL, AND DIRT FROM COMPRESSED AIR**

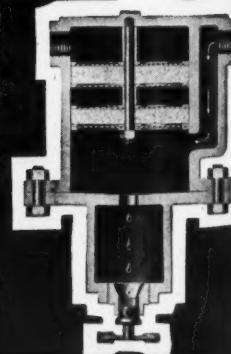
**AT POINT OF USE**

Installed just ahead of point of delivery, PARAGON "C" removes the last trace of pipe line condensation, scale, and grit, and delivers air, clean and dry, to immediate use.

Economical to buy and maintain, simple to install.

**FREE**

Our Bulletin P-A gives details of operation, construction, and prices. Ask for it today!



**AFTERCOOLERS • SEPARATORS • STRAINERS • TRAPS  
SPRAY GUNS • PISTOL SPRAYERS**

**JAS. A. MURPHY & CO.**

501 NORTH FIFTH STREET, HAMILTON, OHIO

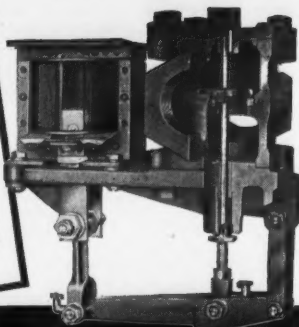
Moisture Elimination Up To 3000 Pounds Per Square Inch

When inquiring check CP 8680 on handy form, pgs. 2-3

**CHEMICAL PROCESSING**

Match it against  
your needs

- Provides full flow instantly
- Direct acting—no pilot valve
- For differential pressures up to 150 lbs.
- For temperatures up to 365° F.



## NEW Automatic Valve

Brings new advances — Serves new uses

Now you can get a dependable, instant-opening automatic valve for practically all liquid level or flow control needs. This new Johnson Valve combines all the basic advantages of a direct-acting solenoid valve with the ability to operate under high differential pressures—up to 150 lbs. in some sizes. Its immediate response eliminates any time lag, or wiredrawing of valve or seat. The single seat construction dispenses with auxiliary pilot valves, minimizes danger of clogging. Can be used with hot and cold water, steam, oil, and other process liquids.

New bulletin shows wide scope of the Johnson Solenoid Valve; ask for copy



The Johnson Corporation

826 WOOD ST., THREE RIVERS, MICH.

When inquiring check CP 8681 on handy form, pgs. 2-3

## PLATECOIL

Replaces Pipe Coil  
FOR HEATING, COOLING  
OR DRYING



### PROVIDES 4 OUTSTANDING SAVINGS

- 1 More Prime Surface for More Efficient Heating.
- 2 Develops Quick Heat for Quick Starts. (As Much as 50% Faster Than Pipe Coil.)
- 3 Takes Half the Space, Weighs Half as Much as Pipe Coil, Costs Half as Much!
- 4 Platecoils Are Easily Cleaned or Replaced in Minutes . . . No Downtime . . . No Tank Dumping.

Take advantage of the complete laboratory assistance offered by Kold-Hold to help you with your heat transfer problems.

Send for complete  
technical manual and  
descriptive Bulletin No. P54

PLATECOIL

KOLD-HOLD MFG. CO.  
LANSING 4, MICHIGAN

When inquiring check CP 8682 on handy form, pgs. 2-3

JULY, 1950

## PROCESSING EQUIPMENT

tion. Weld selector provides correct spring tension to welding jaw for welding blade widths varying from 1/16 - 1/2". Pushbutton switch controls correct amount of heat for annealing operations. Welder carrying handle is designed for use as a holding fixture. Provided with clamps, it can hold blade for filing to remove welding flash in dressing joint. Thickness gauge, located below this holding fixture, is used to test proper blade thickness at weld.

Accessory equipment available includes a blade squaring shear and etching pencil.

Welder measures 7 x 8 x 10-3/4", has a 6" rubber-covered cord which plugs into any 110 or 220 v 50-60 cycle line.

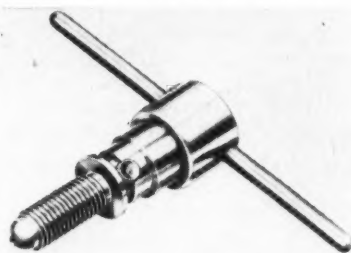
Source: Portable butt welder is made by DoALL Company, Dept. CP, Des Plaines, Ill. . . . or for more information check CP 8683 on handy form, pages 2 and 3.

### Can't open vessels till pressure is reduced . . .

safety bolt's mechanism is actuated by vessel's pressure

Uses: For securing covers of pressure vessels, and at the same time preventing opening of such covers until internal pressure is reduced to a value of safety. Finds safety applications in oil burners and strainers.

Description: Wilson-Dunton safety release pressure bolts are actuated by the pressure within vessels. Hole

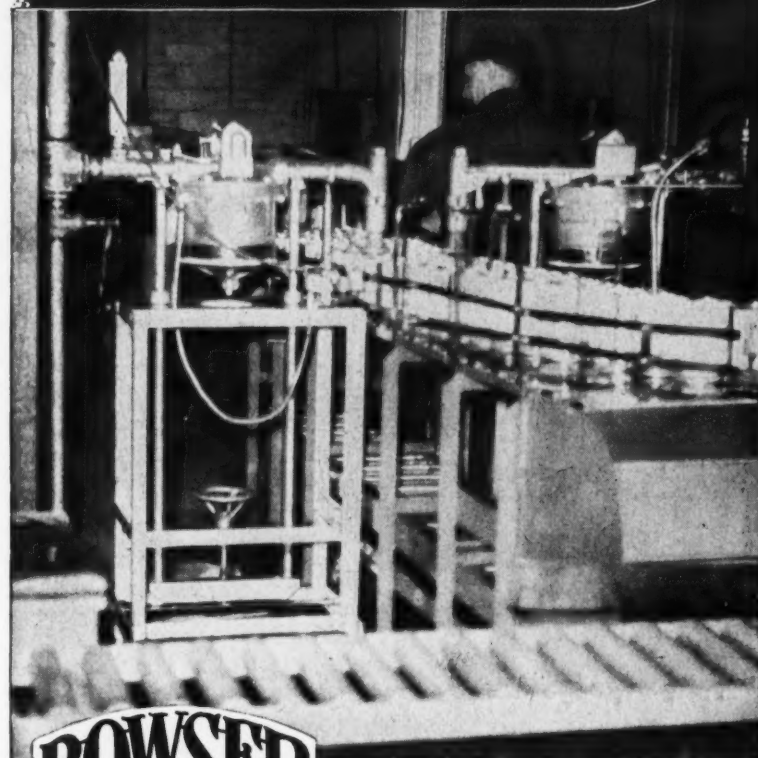


Has safety factor for fastening covers of pressure vessels

through bolt body conducts fluid under pressure to a piston inside bolt head. Piston in pressurized condition allows bolt's handle to turn freely without imparting turning motion to bolt proper. When pressure is released, bolt handle engages bolt proper, and entire bolt is safely removed.

Source: Thomas C. Wilson, Inc., Dept. CP, 21-11 44th Ave., Long Island City 1, N. Y. . . . or for more information check CP 8684 on handy form, pages 2 and 3.

# 43,200 Quart Cans a Day from \$2,000 Investment



**BOWSER**  
ESTABLISHED 1885

In an 8-hour day these Bowser twin automatic can fillers are able to turn out 1,800 cases—24 quart cans to the case—for a prominent mid-western liquid processing plant.\*

A single Bowser can filler, which had been turning out 45 quart cans per minute, could no longer meet the demand. Rather than replace this unit with a \$16,000 machine to get 60 to 100 quarts per minute, the second Bowser automatic can filler was installed . . . bringing the total investment up to \$2,000 and saving \$14,000!

Best of all, this doubling of capacity was accomplished with the same number of men.

\*Name on request.

Bowser packaging systems are also available for accurate, fast filling of drums as well as 1, 2 and 5-gallon screw-cap cans.

It might pay you to have a Bowser engineer check your packaging operations.

**BOWSER, INC.**

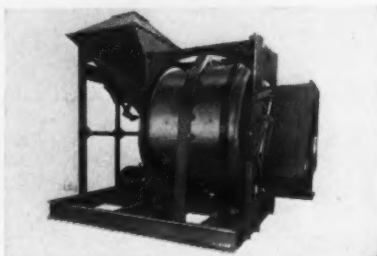
1325 Creighton Avenue, Fort Wayne 2, Indiana

LIQUID CONTROL SPECIALISTS SINCE 1885

When inquiring check CP 8685 on handy form, pgs. 2-3

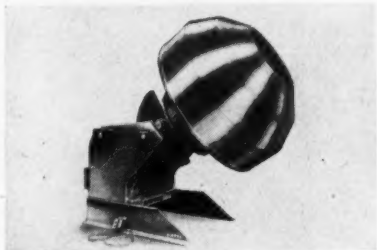
# The right mixer for top quality

Whatever your product, you'll find  
the one right mixer in the broad line of  
**WORTHINGTON-RANSOME**  
INDUSTRIAL MIXERS



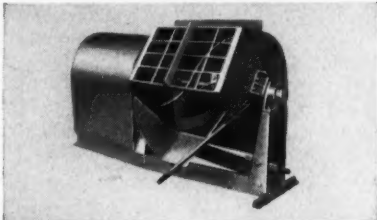
**HORIZONTAL DRUM.** For mixing refractory cements, soap powder, zinc furnace charges, linoleum compounds, dyes, glass batches, plastic powders, insulating cements, etc.

Sizes: 13 to 110 cu ft per batch



**ROTATING-TILTING PAN TYPE.** For mixing—and coating, coloring, tumbling, polishing and finishing drug tablets, candy, pills, dry gelatin, powdered milk, etc.

Sizes: up to 3000 lb per batch



**HORIZONTAL PADDLE MIXER.** Has revolving spiral paddles for mixing plastic cements, foundry sands, clay, etc. Drum tilts to discharge batch.

ALSO: several other types representing the outstanding line of mixers for the process industries, built from designs developed from nearly a century of mixer experience. Write for bulletin.

## WORTHINGTON



WORTHINGTON PUMP AND MACHINERY CORP.  
RANSOME INDUSTRIAL MIXER DIVISION  
DUNNELLEN, NEW JERSEY YRO-3

When inquiring check CP 8686 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

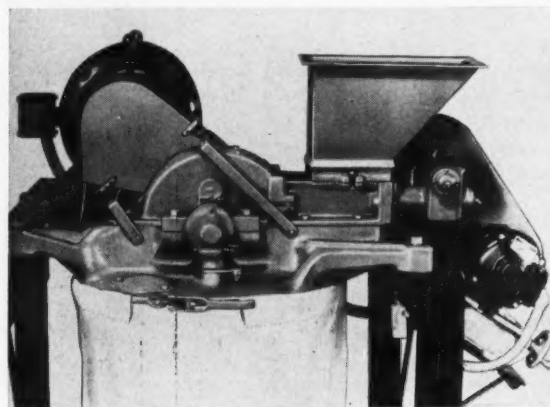
**Grinds, granulates or wet mills  
free-flowing powders  
or 3-inch pieces . . .**

feed-screws, in three diameters, lend versatility to dustless, vibration-free hammer mill

**Uses:** Hammer mill for continuous 24-per-day grinding, granulating or wet milling of materials ranging from free-flowing powders to 3" pieces.

Handles pigments, dry colors, pharmaceuticals, cosmetics, dyestuffs, insecticides, fungicides, synthetic resins, gums, soaps, similar materials.

**Features:** Dustless operation. Compact. Finely-balanced rotor eliminates vibration, even at highest speeds.



Furnished complete with all drives, motors, starters and wiring, as illustrated

All parts are interchangeable, and precision-machined.

**Description:** Capacity-range varies considerably, depending on hardness or toughness of material and fineness of the finished product.

With 20 hp, for example, acrylic resin capacity is only 70 lbs per hr, with fineness of 50% minus 40 mesh; synthetic iron oxide, however, can be ground at 3500 lbs per hr, with fineness of 99.7% through 325 mesh.

Model B Pulva-Sizer is precision-built impact or swing-hammer type with twin screws for feeding underground material directly to face of hammers. Feed screws are available in 3 diameters to handle wide range of materials.

**Source:** Pulva Corporation, Dept. CP, 550 High St., Perth Amboy, N. J. . . or for more information check CP 8687 on handy form, pages 2 and 3.

**On-off control of electric  
motors provided by  
magnetic starter . . .**

extra circuits may be controlled by interlocks added to sides of terminal board

**Uses:** Magnetic starters provide start-stop control and thermal overload protection for polyphase and single phase squirrel-cage motors as well as primary control for wound-rotor motors equipped with secondary controls.

**Features:** "Switchlets" for additional control or power circuits up to 1 hp may be quickly attached to each side of terminal board; several extra circuits may be controlled because Switchlets are single pole, double throw, having 1 normally open and 1 normally closed contact.

**Description:** Starters are available in general purpose

## SAFETY EQUIPMENT FOR ALL INDUSTRIES

**SANITARY  
Portable  
DRINKING  
FOUNTAIN**

for

**CONSTRUCTION  
WORKERS • ROAD  
AND BRIDGE GANGS •  
MAINTENANCE  
CREWS • STEVEDORES  
MINERS • OIL FIELD  
WORKERS**

Or Wherever a Permanent  
Water Supply is not Available!

Four gallon capacity. Fully  
insulated. Will maintain  
water temperature within  
ten degrees for twelve hours  
in the hottest weather.

CLEAN, COOL DRINKING WATER, ANYWHERE . . . ANYTIME

Write for Bulletin AB-70



Safety Equipment for all Industries

### INDUSTRIAL PRODUCTS COMPANY

2834 N. FOURTH STREET • PHILADELPHIA 33, PA.

When inquiring check CP 8688 on handy form, pgs. 2-3

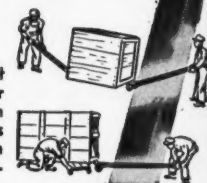
## This odd looking THOMAS truck is one of Handiest Made

Moves tremendous loads  
easier, faster, safer

### THOMAS PRY TRUCK

You will be surprised at the amount of heavy cases, crates, die blocks or any kind of big loads two men can move, shift or store with Thomas Pry Trucks. Even with only one man the work production is amazing, although purchase in pairs is recommended.

The sharp steel nose slides under the load and the tremendous leverage enables the user to raise the load easily as high as 9" from the floor. Two or more Pry Trucks can be used to move loads, or by raising the load, rollers or dollies can be placed under it. Loads can be moved in and out of freight cars or motor trucks and shifted in and out of tight places. Write for catalog PT.



One of many  
Thomas 2 and  
4 Wheel  
Trucks

## THOMAS

TRUCK & CASTER CO.

113 Mississippi River  
Keokuk, Iowa

When inquiring check CP 8689 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

or weatherproof enclosure and open type in sizes to 5 hp, 220v ac, or 7½ hp, 440-550v ac. Three styles to meet specific pilot control requirements are offered: 1) equipped with built-in push button station for local pilot control; 2) equipped with built-in selector switch designed for convenient change-over from hand to automatic pilot operation; and 3) without built-in pilot control for applications requiring remote control.

Terminal board is molded Plaskon Alkyd selected for resistance to arcing, tracking, heat under continuous exposure, and dimensional stability. Integrally molded barriers prevent flashover. Movable contact bridges are phosphor-bronze and slide on guides made of stainless steel for longer wear. Contact springs are also stainless steel.

Dual voltage coils eliminate stocking of extra coils for changing the voltage and allow for matching coils to dual voltage motors. Thermal overload relay is solder-pot type; heater coils have brass end-terminals and are interchangeable. Enclosure is pleasing and compact while allowing easy wiring and good visibility.

**Source:** Magnetic starters are manufactured by the Furnas Electric Company, Dept. CP, Batavia, Ill. . . or for more information check CP 8690 on handy form, pages 2 and 3.

### Modular principle applied to lighting fixtures lends flexibility . . .

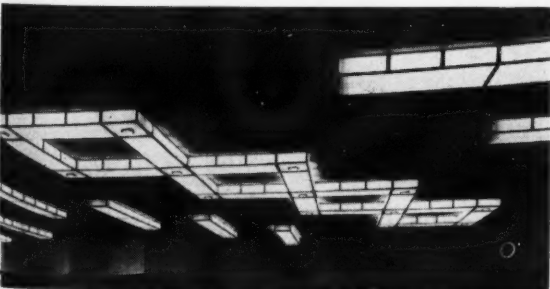
approximately 50,000 patterns can be built with combinations of the 4 basic units

**Uses:** Lighting fixtures can be combined to fit any room area regardless of shape or size.

**Features:** Equipment is based upon modular principle — the adoption of a standard unit of measurement. Fixtures can be arranged in any design to achieve custom-built effects with mass-produced units.

**Description:** Mitchell Module System consists of 4 modules or units of fixtures which may be combined in approximately 50,000 patterns to meet any need. All units are made in multiples of the standard size, 16-1/4".

Original installation of the modules is simple, and other units may be easily and quickly added to the pattern with clamp connector. Fixture appearance is enhanced by pan-

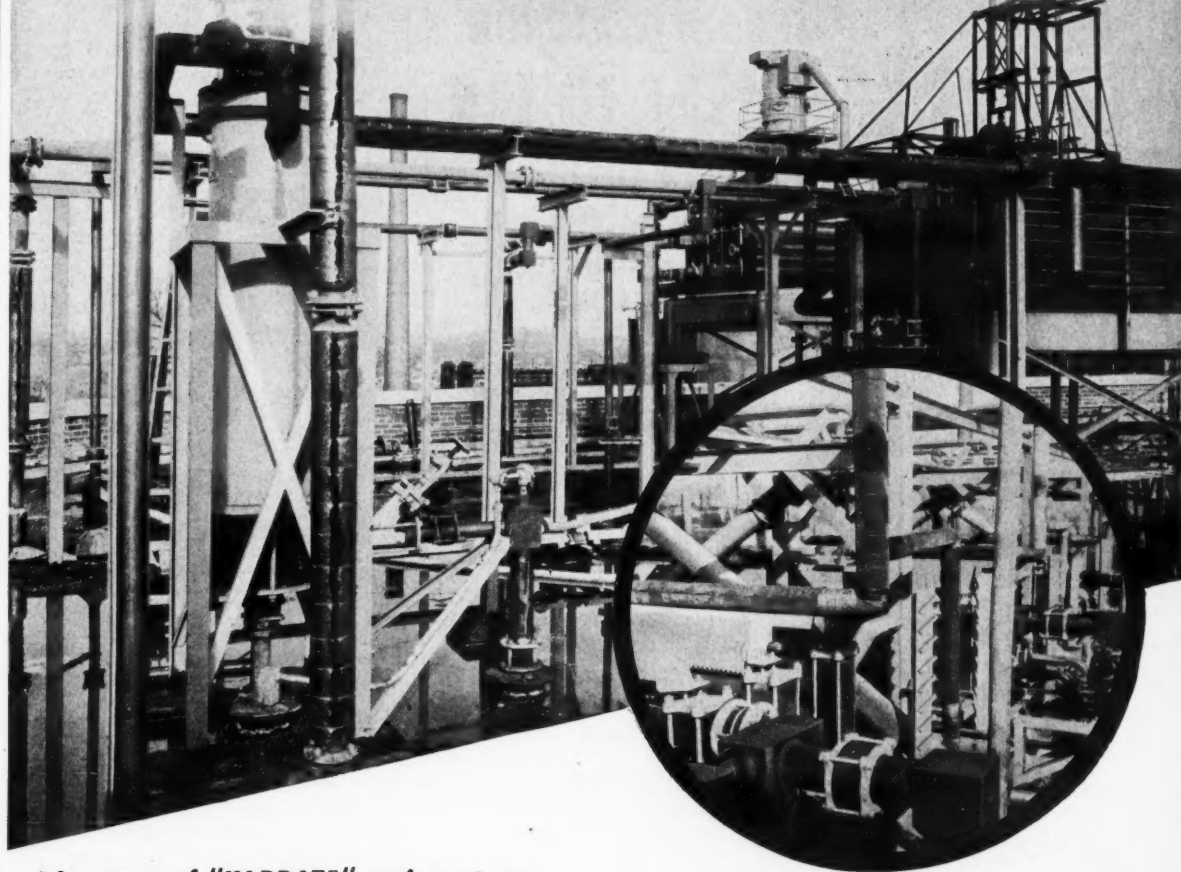


One of the 50,000 arrangements possible with lighting units

els and louvers of Styron plastic. Made by The Dow Chemical Company, Midland, Mich., this material provides equal brightness on all sides and ends, eliminating undesirable dark spots. Its properties include light stability and excellent light diffusion. System permits combination of all popular commercial light sources. A design kit is available to aid in planning and installation.

**Source:** Lighting modules are made by the Mitchell Manufacturing Company, Dept. CP, 2525 N. Clybourn Ave., Chicago, Ill. . . or for more information check CP 8691 on handy form, pages 2 and 3.

# For any or all corrosive jobs... "KARBATE" PIPE!



### Advantages of "KARBATE" equipment are:

- Both acid-resistant and alkali-resistant
- Light in weight, easy to machine and assemble
- No metallic contamination of product
- Immune to thermal shock
- Very high thermal conductivity

WHETHER your corrosion problem involves a little 100-foot "nuisance" pipe line . . . or the outfitting of a complete chemical plant, "Karbate" impervious graphite equipment offers an economical and efficient solution. "Karbate" pipe, fittings, and related equipment are the best obtainable for conveying, processing or storing practically all corrosive fluids.

For complete details, write to National Carbon Division, Dept. CH

### NOW...double light at no extra cost!

Specify the new and improved "Eveready" 1050 flashlight battery and you get more than double the usable brilliant white light for critical uses than is available from any other flashlight battery. National Carbon has ever made. The battery is leakproof . . . NO METAL CAN TO LEAK OR CORRODE!



The terms "Karbate" and "Eveready" are registered trade-marks of

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UNION CARBIDE AND CARBON CORPORATION**

30 East 42nd Street, New York 17, N. Y.

District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

Foreign Department: New York, U. S. A.

When inquiring check CP 8692 on handy form, pgs. 2-3

# PELLET YOUR PRODUCTS

## PROMOTE YOUR PROFITS



with  
**SPROUT-WALDRON  
PELLET MILLS**  
for  
**CLAY  
CARBON  
ALUMINA  
LITHARGE  
SEWAGE SOLIDS  
ANIMAL FEEDS  
RODENT POISONS  
etc., etc.**

The modern trend to pelleting is making great strides in the processing industries. Day after day, Sprout-Waldron's engineers are called upon to make recommendations on pelleting a great variety of products.

Pelleted products are easier to handle, easier to merchandise, easier to sell. They have less competition, bring a higher price—step up profits.

Pioneers in pelleting, Sprout-Waldron have the experience, know-how, and facilities to supply you with the finest pelleting equipment, engineered to your individual needs.

Consult with a S/W processing expert, or write today for the New Simplex Bulletin to Sprout, Waldron & Co., Inc.,  
10 Waldron Street, Muncy, Penna.

137

LOOK TO  
SPROUT-WALDRON  
for BETTER  
PROCESSING  
EQUIPMENT

**Sprout-Waldron**  
*Manufacturing Engineers*  
SINCE 1894  
MUNCY, PENNSYLVANIA

Size Reduction • Mixing and Blending

Bulk Materials Handling • Product Classification • Pelleting and Special Facilities

When inquiring check CP 8693 on handy form, pgs. 2-3

### PROCESSING EQUIPMENT

**Baffles assist whirlpool action in laboratory mixer . . .**

inefficiencies of horizontal mixing canceled by fins

**Uses:** Laboratory mixer effects liquid-liquid, liquid-solid, or liquid-gaseous dispersions.

**Features:** Internal baffles break up whirlpool action to produce both horizontal and vertical mixing.

**Description:** Mixer employs a slightly curved, rotating paddle (adjustable for different viscosities) to perform the actual agitation. However, three baffles, freely suspended in



Mixing proceeds horizontally and vertically

the dispersion, break up the whirlpool action. The paddle-baffle arrangement mixes both horizontally and vertically, with the movement proceeding outward, upward, over, and down. Dispersion is thus folded into itself.

Mixer has a Pyrex jar of 3½ gal capacity with easily removable stainless steel parts. The 1/6 hp motor can be obtained for either 115 or 230 v operation. Paddles are rotated 275 rpm for vigorous stirring.

**Source:** Fisher-Goldman Mixer is product of the Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh, Pa. . . . or for more information, check CP 8694 on handy form, pages 2 and 3.

**Bearings self-lubricated at temps to 800°F . . .**

function at relatively high speeds under heavy loads

**Uses:** Bearings for steam pumps, turbines, industrial ovens, and for installations where inaccessibility of bearings makes maintenance of non-lu-

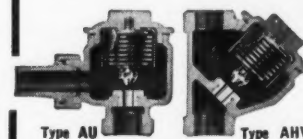
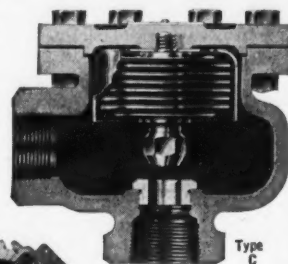
### Well-Known Processor

## Puts 37% More Thru Cookers with Nicholson STEAM TRAPS

A leading drug manufacturer found that a recent Nicholson thermostatic trap installation, replacing a mechanical type, so cut kettle time that their production was increased 37%. Reasons for Nicholson's faster heat transfer: operate on lowest temperature differential; 2 to 6 times average drainage capacity; maximum air-venting.

**5 Types for Every Plant Application**

Process, Heat, Power. Sizes, ¼" to 2"; pressures to 225 lbs.

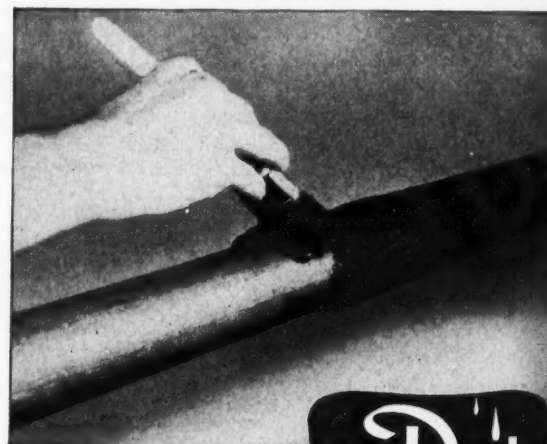


**CATALOG 250**  
or see Sweet's

**W. H. NICHOLSON & CO.** 181 OREGON STREET  
WILKES-BARRE, PA.

Sales and Engineering Office in All Principal Cities

When inquiring check CP 8695 on handy form, pgs. 2-3



**COVER PIPES  
TANKS, WALLS**

**NoDrip**

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating, stops condensation drip!



NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5, and 55 gal. drums, ready for use.

**TRY NoDRIP**

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook

**J. W. MORTELL CO.,** 530 Burch St., Kankakee, Ill.

When inquiring check CP 8696 on handy form, pgs. 2-3

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SING

**Genuine Natural Rubber INDUSTRIAL GLOVES**

**REINFORCED SAFETY**

**NON-SLIP FINGERS — PALM-THUMB CROTCH**

No. 5621 FIRM-GRIP  
No. 5615 SMOOTH

LENGTH: 14 inches  
GAUGE: .045-.055  
COLOR: Brown  
SIZES: 10-11-12

The outstanding value and hand safety specification throughout industry. Heavy gauge, steam-cured, high age-resistance and exceptional durability with extra heavy reinforcement at points of wear. Long and short gauntlets in heavy and lighter gauge styles with all-over smooth surface also available in genuine neoprene latex.

**SEIBERLING LATEX PRODUCTS COMPANY**  
AKRON 9, OHIO

\*Request sample and quotations.

When inquiring check CP 8697 on handy form, pgs. 2-3

**International**

**BALL MILLS**

**RIBBON MIXERS**  
BELT OR MOTOR DRIVEN

**PORTABLE MIXERS**  
MEDIUM AND HEAVY DUTY  
Modern design and many different types. Direct Drive, Gear Motor, Slow-Speed.

**PERMANENT MIXERS**  
With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

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**INTERNATIONAL ENGINEERING, INC.**  
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DAYTON 1, OHIO  
CHICAGO 407 S. Dearborn St.  
LOS ANGELES—130 N. Norton Ave. — Fairchild Mfg. Co.

When inquiring check CP 8698 on handy form, pgs. 2-3

JULY, 1950

## PROCESSING EQUIPMENT

bricating types difficult and costly. Bearing material is also applicable to seals, rings, slides, and valves.

**Features:** Bearings operate at temperatures up to 800°F without lubrication, function at relatively high speeds under heavy loads, and are resistant to corrosion and chemicals.

**Description:** Morganite bearings are made of carbon, and are reported to offer high mechanical strength.

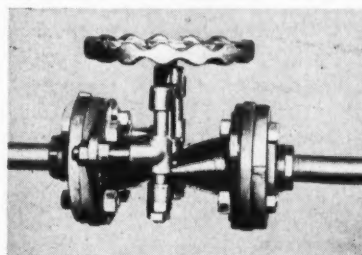
**Source:** Product of Morganite Incorporated, Carbon Specialties Div., Dept. CP, 3304 48th Ave., Long Island City 1, N. Y. . . . or for more information check CP 8699 on handy form, pages 2 and 3.

**Service determines type of rubber used in pinch valve . . .**

outwears metal valves in handling abrasives and corrosives

**Uses:** Rubber pinch valves for services requiring positive shut-off. Abrasives, corrosives, oils, and sanitary products may be handled with suitable valve materials.

**Features:** Maker reports valve will outwear metal valves when installed in pipelines carrying abrasives or cor-



Pinch valve is recommended for positive shut-off service

rosives. Flexibility will offset misalignment in pipelines; breaks-up galvanic action in metal lines; and metal parts can be refitted to new valve bodies. Also absorbs vibration, eliminates water hammer, and assures positive shut-off.

**Description:** Pinch valves are available in abrasive and corrosive resistant compounds, neoprene for oil resistance, butyl rubber for high temperatures and severe acid conditions, and pure gum rubber for sanitary products.

Valves are compact — mechanism, retaining rings, and pinch body are assembled as a unit.

**Source:** Product of the United States Rubber Company, Rockefeller Center, New York 20, N. Y. . . . or for more information check CP 8700 on handy form, pages 2 and 3.

The new  
**PYREX**  
BRAND

**“DOUBLE TOUGH”  
GLASS PIPE**

**cuts process piping costs**

More than ever PYREX brand glass pipe is your best bet for process piping where protection against contamination and corrosion is required and where cost of cleaning and observation of flow are important. Why? Because PYREX brand glass pipe is now “Double-Tough.”

The ends of all straight lengths and all standard fittings (except U Bends) are heat strengthened. Tolerances in length, wall thickness, bow and angularity have been reduced over 50%. This all adds up to easier installation and longer service life. And—a comparison of installation and maintenance costs of PYREX brand “Double-Tough” pipe will be convincing proof of its economy.

Made of PYREX brand glass No. 7740, “Double-Tough” pipe offers maximum chemical stability plus higher resistance to physical and thermal shock. Complete stocks are available in 1", 1½", 2", 3", 4" and 6" I.D., including standard fittings. Write for information.

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*Corning means research in Glass*

Technical Products Division: { Laboratory Glassware, Glass Pipe, Plant Equipment, Lightingware, Signalware, Gauge Glasses, Optical Glass, Glass Components

When inquiring check CP 8701 on handy form, pgs. 2-3



## This BOOKLET Answers Your Questions About STAINLESS STEEL TUBING

Properties table ... corrosion data ... typical applications ... fabricating data ... tubing data tables ... engineering data ... these, briefly, are but some of the contents of this valuable 28-page booklet.

Whether you are a designer, engineer, purchasing agent or plant operator, you'll find it a handy reference whenever you are confronted with problems involving stainless steel tubing.

Republic Steel—world's largest producer of alloy and stainless steels—offers you this booklet without cost or obligation. Send for your copy *today*.

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**ELECTRUNITE®**  
STAINLESS STEEL TUBING AND PIPE

When inquiring check CP 8702 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

### Sampling liquids, transfer to sample bottles is simplified . . .

dipper's valve opens automatically when it contacts sample bottle, emptying contents

**Uses:** For sampling liquids and transferring such liquids to sample bottles.

**Features:** When filled dipper contacts top of a sample bottle, dipper's valve automatically opens and empties contents into bottle — simplifying transfer of samples.

**Description:** Dipper is made of highly polished stainless steel and consists of only three parts to facilitate clean-



Precision-ground valve in sampling dipper eliminates dripping

ing. Handle is a sturdy rod; is fitted with a precision-ground valve at its base to eliminate dripping. Removable sample cup rests on valve, and is held in place by a spring clip. Clip snaps over top of cup and regulates the opening between cup's base and valve.

Standard model sampling dipper has a 12 cc capacity with handle lengths in a choice of either 18, 24, 30, or 36". Dippers with larger or smaller capacities and in special lengths can be made to specifications.

**Source:** Product of the Harold S. Spencer Company, Dept. CP, Homer, N. Y. . . . or for more information check CP 8703 on handy form, pages 2 and 3.

### Designs single-stage turbine for high pressure, high temperature service . . .

for initial pressures to 1450 psig and initial temperatures to 950° FTT; back pressure 300 psig

**Uses:** Designed especially for high temperature, high pressure service.

**Features:** Labyrinth shaft seal design prevents leakage effectively, reduces losses, has long life, and requires less maintenance. Turbine can be furnished with any of eight different types of governors to meet control requirements.

**Description:** Single stage mechanical drive turbine, suitable for initial pressures to 1450 psig, initial temperatures to 950 FTT, and back pressures to 300 psig. Labyrinth shaft consists of a series of shaft grooves and mating tongues of stainless steel packing. Number of labyrinths in shafts depends upon exhaust pressure rating, as many as 52 labyrinths per side being employed for the highest pressures.

To provide for extreme thermal expansion encountered in high temperature service, the turbine is supported at the true centerline and the front end is mounted on a flexible channel. This method of mounting permits both radial and axial expansion without disturbing the shaft centerline.

Casing, packing glands and bearings are split at center for

# WELD

## 4 Ways Arcos Helps Solve Problems Welding: Stainless... Low Alloy High Tensile ... Non-Ferrous Metals

1. **Most complete line** ... Standard electrodes, always available, to weld stainless and low alloy high tensile steels, monel, nickels and bronzes.
2. **Help on welding procedure** ... Arcos research and engineering help goes beyond the metal itself. It answers fabricating problems such as dilution on clad welding, heat treatment, welding sequence and others.
3. **Knowledge of weld performance** ... 20 years of pioneering experience in stainless and alloy welding to tell you weld performance under conditions of high and low temperatures, corrosion, cavitation, abrasion, pressure and others.
4. **Special electrodes for critical service** ... Arcos research facilities and flexible production make this possible quickly and at low cost.

All standard sizes and types of Arcos electrodes are available from convenient distributor stocks.

**ARCOS CORPORATION**  
1500 South Fifth St., Philadelphia 43, Pa.

**WITH ARCOS**

Specialists in Stainless, Low Alloy and Non-Ferrous Electrodes

When inquiring check CP 8704 on handy form, pgs. 2-3



## FOR EXTREME HIGH AND LOW TEMPERATURE APPLICATIONS

**SILICONE RUBBER** has been developed to meet the critical demands of extreme temperature applications in the automotive, aviation, electrical, refrigeration, and original equipment manufacturing industries. **SILICONE RUBBER PARTS** retain all desirable rubber-like properties at temperatures ranging from -160° to +500° Fahrenheit, and they can be molded, extruded, punched, or lathe-cut to meet exacting specifications.

**SILICONE RUBBER PARTS** have excellent dielectric properties, resist permanent compression, will not turn to carbon despite heat, and are unaffected by hot lubricating oils, many chemicals, ozone, prolonged weathering, ultra-violet rays, etc. They also have excellent water repellency.

**WRITE FOR CATALOG TODAY**

**Specify Stalwart for Quality Custom Rubber Products**  
**STALWART RUBBER COMPANY**

7221 NORTHFIELD ROAD  
BEDFORD, OHIO

When inquiring check CP 8705 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

easy removal. Rotor, shaft seals and bearings can be inspected without disturbing piping connections; precision machined casing joints require no gaskets.

Operation of the overspeed governor and emergency trip valve is in no way interdependent upon the operation of the normal speed governor, or any other part of the turbine. A sticky governor valve cannot jeopardize its operation.

Functioning of emergency trip valve is quick and sure. Stem of the valve rides freely without packing friction in a closely machined rust-resisting nickel-iron bushing. Valve closes against a single seat with steam pressure acting on top of valve to keep it tight. Foreign matter is kept out of turbine by a strainer around the valve.

Source: De Laval Steam Turbine Co., Dept. CP, Trenton 2, N. J. . . or for more information check CP 8706 on handy form, pages 2 and 3.

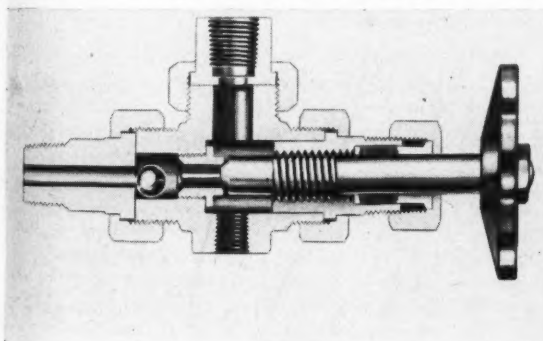
### Liquid-level gauges removable from systems without draining . . .

gauge valves provide double-union connections for gauges and tanks or vessels

Uses: Liquid-level gauge valves include offset types for use with flat-glass gauges, and a jacketed type for use with heated or cooled gauges.

Features: Unions are provided for connection to both gauge and tank or vessel, making it possible to turn valve to any angle or readily remove gauge from system without draining liquid.

Description: Three newer double-union gauge valves are added to maker's liquid level gauge valve No. 64, making a more complete line. Two offset types, No. 66-U



Double-union gage valve

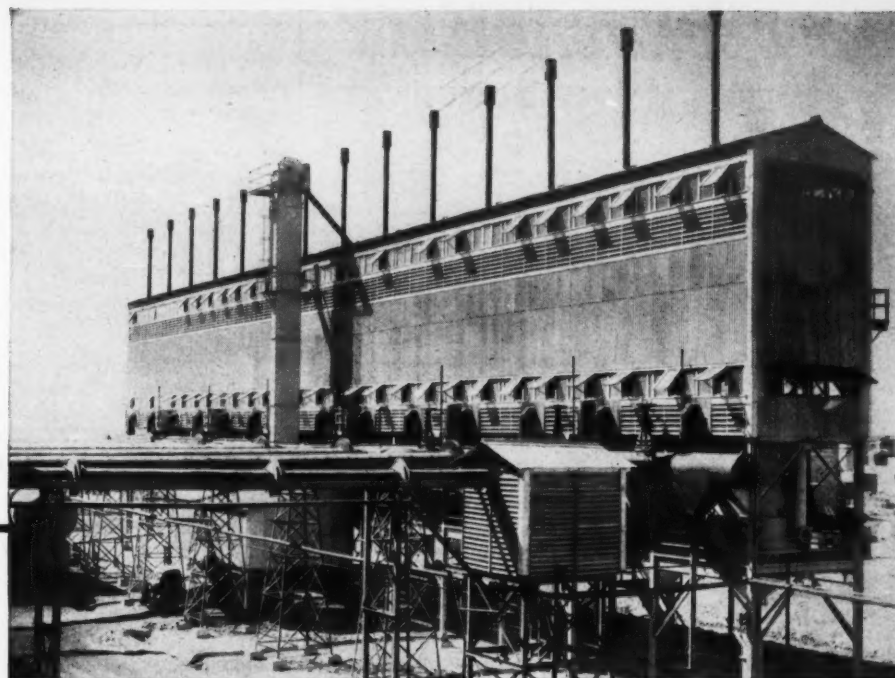
and 46-U, are designed with bodies which have gauge and vent or drain connections, offset  $7/8$ " so interiors of flat-glass gauges may be cleaned without gauge removal. These types can be used on side-connected gauges to attain maximum visibility between fixed centers.

No. 93-U valve is a jacketed, globe type. It eliminates need of costly steam tracing; is available either with or without a stainless steel ball-check safety shutoff.

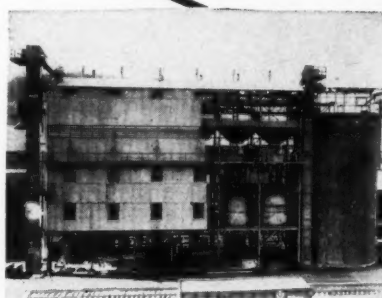
All valves include plain or quick closing types, stainless steel trim, and interchangeable unions, nuts and tailpieces. They are available with  $1/2$ " or  $3/4$ " male, or  $1/2$ " female tailpieces in various metals to withstand corrosive or other conditions. All have regrindable seats with the exception of 46-U.

Source: Gauge valves are products of the Jerguson Gate & Valve Company, Dept. CP, 80 Fellsway, Somerville 45, Mass. . . or for more information check CP 8707 on handy form, pages 2 and 3.

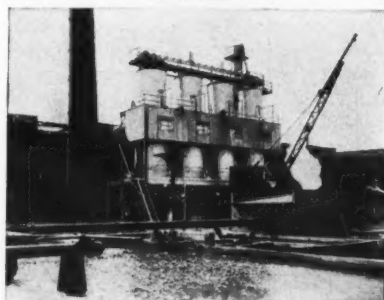
14 largest-size Wellman-Galusha Gas Generators all installed in one building



# WELLMAN MANUFACTURES THE FAMOUS GALUSHA Clean Gas Generators



6-unit plant of 10' Wellman-Galusha Gas Generators



4-unit plant of Wellman-Galusha Gas Generators

The Wellman-Galusha is a fully water jacketed gas generator with exceptionally efficient rotary grates, ample fuel storage bins and provision for the generation of steam required for gas making—all incorporated in the machine itself.

The lowest priced grades of Anthracite coal, "rice" or smaller, and coke, "pea" or "breeze", can be satisfactorily and economically gasified.

## WELLMAN WILL BUILD IT!

Car Dumpers (all types)	Industrial Furnaces
Ore and Coal	Coke Pushers
Handling Bridges	Mine Hoists
Gas Producers	Charging Machines
Skip Hoists	Soaking Pits
Special Cranes (Wharf, Dry-Dock, Hammerhead, Pontoon)	

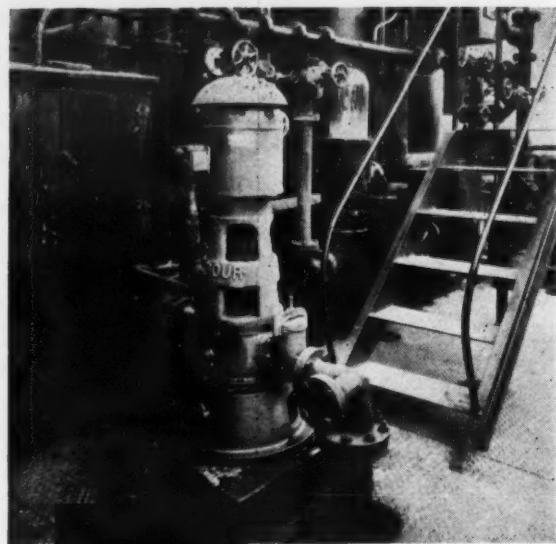
## THE WELLMAN ENGINEERING COMPANY

7032 CENTRAL AVENUE

CLEVELAND 4, OHIO

When inquiring check CP 8708 on handy form, pages 2-3

# for **DEPENDABILITY**



they  
specified  
**LABOUR**

Here's a No. 10 LaBour Type G at work in a Chemco contact sulphuric acid system. The owners of this plant wanted dependability—freedom from costly process interruptions due to pump failures—and they got it when a LaBour was specified for the job.

LaBour Type G is the packingless, self-priming centrifugal pump that has revolutionized old concepts of pump maintenance. Since it has no packing gland, it never needs attention for tightening or repacking. There are no rubbing or wearing parts anywhere in this pump, and aside from occasional lubrication of the bearings there's nothing to do to keep it working properly. That's minimum maintenance at minimum trouble and expense.

If you aren't already familiar with the overall economy and process efficiency which a LaBour Type G can deliver, we urge you to write for full details. If you'll tell us the facts about the particular job you have in mind, we can give you specific information that may be of great value to you.



ORIGINAL MANUFACTURERS OF THE SELF-PRIMING CENTRIFUGAL PUMP

# LABOUR

THE LABOUR COMPANY, INC. • Elkhart, Indiana, U.S.A.

When inquiring check CP 8709 on handy form, pgs. 2-3

Page 88

## PROCESSING EQUIPMENT

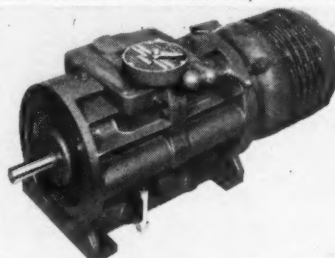
### Any speed available from variable speed transmission . . .

extreme accuracy over entire range afforded by micrometer, lever controls

**Uses:** Variable speed transmission yields any speed from zero to desired maximum; finds application in metering, proportioning, synchronizing conveyors, winding, registering, pumping, and feeding.

**Features:** Lever or micrometer controls make extreme accuracy speed control over the entire range possible.

**Description:** Self-lubricated and of all-metal construction, transmission combines speed reduction and infinite speed variation in a single compact housing. Several types of remote controls are available: mechanical, electrical, pneumatic. Model is available in sizes from 1½ to 3 hp, and in a 5 hp unit for centrifugal pump or blower applications. All can be had without motor or with built-in motor of all types — drip-proof, explosion-proof, or totally enclosed. Also available is a reversing model which delivers all speeds forward and reverse without change of input rotation.



Transmission converts to any desired speed

In addition to standard drive, transmission also comes with built-on gear-box, either reduction or step-up. This avoids the need for auxiliary gearing, the whole job being done by a single unit requiring only 4 fastenings. Transmission housing ends are machined to take a NEMA "D" flange motor, and the "D" flange construction on output end of the drive simplifies vertical mounting of transmission for mixing or agitating applications.

**Source:** Model 300 variable speed transmissions are manufactured by Graham Transmissions Incorporated, Dept. CP, 3754 N. Holton St., Milwaukee 12, Wis. . . . or for more information, check CP 8710 on handy form, pages 2 and 3.

### Use infra-red as heat source in freeze-drying of ACTH, up production, cut cost . . .

supplants liquid heat source; speeds process; lower vacuum, less cold required

Ingenious freeze-drying apparatus is largely responsible for the increased production and lowered price of ACTH. The process is speeded-up as much as ten times and a greater yield of the hormone is attained by reducing the loss of potency previously experienced in the drying process.

Advanced methods were developed by a group headed by Dr. Ralph F. Colton of the Dry Freeze Corp. of Chicago, on the basis of ideas originally evolved during war research on drying blood plasma by Sidney O. Levinson, M. D. and Franz Oppenheimer, Ph. D., both of Michael Reese Foundation, Chicago.

Up to now, ACTH has been relatively scarce. At present, production level is 30 times that of a year ago. Price has been cut from about \$210 a gram to \$100, or more than 50%.

Ordinary freeze-drying method previously used applied heat by means of a liquid, ethylene glycol. This was allowed to flow through a shelf on which the vials of frozen solution stand at a temperature of about 60° below zero in a vacuum tank. Heat about 40 degrees above zero, was transferred by contact to the metal of the shelf, then to the glass of the vial, then to the frozen solution. Heat finally passed to top where evaporation took place. Difference of 100 degrees and effect of vacuum dried material in a matter of several hours.

In the new method, infra-red rays are substituted for the liquid as a heat source. This takes advantage of the fact that every substance, including water, absorbs only certain wave lengths of radiation and is transparent to and unaffected by others.

In using the infra-red technique, vials of ACTH-Armour are hung by their necks from a metal rack. Invisible infra-red rays are emitted by a series of fine wires, electrically charged. Wires are just a few inches below vials. Since evaporation takes place from the top surface of the solution, radiation is applied from the bottom, where there is always water, until all is evaporated.

Where wide-mouthed bottles were necessary when old method was used to permit escape of water vapor, it is now possible to set caps loosely and still get efficient drying. Caps are tightened later. This prevents occasional contamination by air-borne bacteria. Most of the wave-lengths affecting water pass through the glass. ACTH in contact with glass therefore takes up little heat, further reducing loss of potency and increasing yield.

The system can be used in other processes. (Armour & Co., Chicago, Ill.)

### Nearly 100% ultraviolet, infrared rays absorbed by welding plate . . .

plate compounded to protect eyes and aid visibility  
**Uses:** Welding plates for filtering out ultraviolet and infrared rays in electric welding.

**Features:** Chemically compounded to absorb at least 99.5% infrared and 99.75% ultraviolet.

**Description:** Standard plates are 2 x 4¼". Also available in 2 x 4⅛" size. Accurately graded for density of shade and thickness as set forth in US Federal Specifications GGG-H-211 for welding helmets and shields.

**Source:** General Scientific Equipment Co., Dept. CP, 2700 W. Huntingdon St., Philadelphia 32, Pa. . . . or for more information check CP 8711 on handy form, pages 2 and 3.

### Rotor adjustment compensates for impeller-face wear of pumps . . .

made in seven sizes; materials of construction selected to suit specific requirements

**Uses:** For wide range of applications in process industries requiring handling of hot or cold clear liquids; also viscous, corrosive or carrying suspended solids.

**Features:** To compensate for wear at the impeller face, entire rotor can be adjusted axially by means of an external adjustment screw. Eductor vanes on back of impeller reduce end thrust, relieve stuffing box pressure, and keep the back of the impeller clean when handling liquids with solids in suspension.

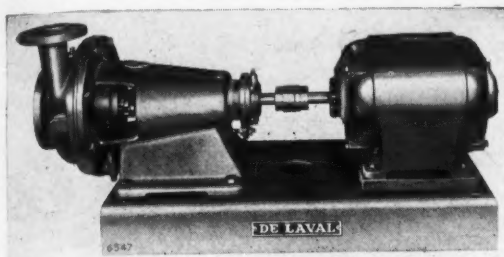
Should service requirements change, they can be converted from open to closed impeller or vice-versa quickly and easily. Gland face is pre-machined and drilled for easy

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

conversion from conventional packing to mechanical seals.

**Description:** Parts are standardized so that only two sizes of shafts, shaft locknuts, bearings, bearing cartridges and pedestals are needed for the entire line of seven sizes. Capacities range from 15 to 600 gpm, heads 15 to 240'.



Pumps handle clear, corrosive liquids

Permanently lubricated bearings are sealed against the entrance of dust and moisture.

**Source:** Type CP pumps are built by De Laval Steam Turbine Co., Dept. CP, Trenton 2, N. J. . . . or for more information check CP 8712 on handy form, pages 2 and 3.

### Prefabricated pipe, welding fittings fully specified

Designed for inclusion in reference library, 184-page bound catalog contains data on line of welding fittings, prefabricated piping, forged flanges, and pipe coils. Contents include charts, tables, graphs, condensations and discussion of pipe specifications, welding data, design formulas, metallurgical information, and other engineering data. There are digests of pertinent ASA and ASTM specifications covering pipe, fittings, and flanges, with a discussion of code requirements for pressure piping. Charts show the physical properties and chemical analyses of various kinds of pipe and fittings. One section is devoted to tables of working pressures, stress values, and pressure ratings.

Charts are included for easy calculation of expansion, modulus of elasticity, and flow resistance of bends, fittings, and valves. As aid to the lay-out engineer, additional charts show working dimensions of all welding fittings and flanges, and overall dimensions of various fitting combinations. More than 100 photographs show types of installations and illustrate use of such fittings as welding saddles and sleeves. Handy 65-page technical reference section completes contents.

Catalog 48 is available from Midwest Piping & Supply Co., Inc., Dept. CP, 1450 S. 2nd St., St. Louis 4, Mo. When inquiring specify CP 8713 on handy form, pages 2 and 3.

### Learn how you can maintain AC rotating equipment

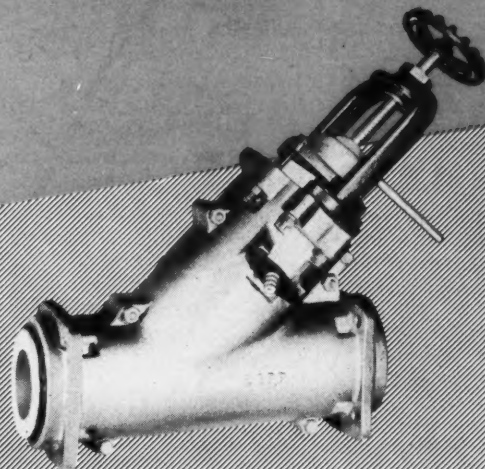
Contents of a 24-page bulletin are broken down into intelligent and consistent information on preventive maintenance and repair of rotating AC equipment. Under maintenance, such subjects as drying moist insulation, measuring insulation resistance, bearing clearances, and proper machine applications are covered. Information on repair includes data on stator coil and slip ring rotor repairs, and balancing of rotating equipment.

Bulletin 05R7417 is issued by the Allis-Chalmers Manufacturing Co., Dept. CP, 1114 S. 70th St., Milwaukee, Wis. When inquiring specify CP 8714 on handy form, pages 2 and 3.

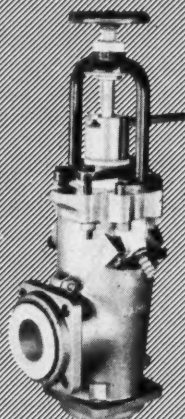
# Porcelain.. Armored..

**For PURITY and  
CORROSION RESISTANCE**

**For OPERATING SECURITY**



Y VALVE



ANGLE VALVE



FLUSH VALVE

*Lapp*  
**ARMORED  
PORCELAIN  
VALVES**

● **Laboratory purity in industrial production and resistance to all acids except HF** are the chemical properties of processing equipment of Lapp Chemical Porcelain. Now the original Lapp Porcelain Valve is available completely encased in heat-treated acid-resisting silicon aluminum armor for protection against carelessness or accident. At a fraction of the cost of expensive alloy or lined valves, Lapp armored valves give maximum operating security as well as the purity and corrosion resistance of **solid porcelain**. Armored Y-valves in 1", 1½", 2", 3", 4" and 6" sizes; armored angle valves in 1" and 2" sizes; armored flush valves in 1½", 2" and 3" sizes. Write for descriptive literature and specifications. Lapp Insulator Co., Inc., Process Equipment Division, 266 Maple St., LeRoy, N. Y.

# Lapp

**PROCESS EQUIPMENT**

CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS  
PULSAFEEDER CHEMICAL PROPORTIONING PUMPS

When inquiring check CP 8715 on handy form, pgs. 2-3

# DRACCO DUST CONTROL *Recovers* 80 to 100 TONS Per Day



There are  
**8** WAYS  
TO INCREASE  
EFFICIENCY  
with  
**DRACCO**  
Dust Control

If it were possible to compute the value of recoveries made by DRACCO Dust Control, it would run into MANY MILLIONS each year. In the installation shown above, 56 compartments, DH Type, handle 280,000 C.F. of air per minute and recover from 80 to 100 tons of dust per day. DRACCO Dust Control saves money by increasing plant efficiency in 8 ways. If you have Dust, find out from DRACCO Engineers how many of the 8 ways will save YOU money. Consult DRACCO Engineers for an analysis of your dust or fume problem.

For Further Information Write

## DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

**DUST CONTROL EQUIPMENT  
PNEUMATIC CONVEYORS • METAL FABRICATION**

When inquiring check CP 8716 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

**Simple locking device  
adjusts mixers to  
any angle . . .**

portable units offered in direct- and geared-drive types

**Uses:** Direct-drive mixer is recommended for mixing, dissolving, and suspending solids in liquids where solutions up to 500 centipoises are handled. Geared-drive unit may



Direct-drive portable mixer

be used similarly for handling heavier solutions, those up to 4000 centipoises. Both units are suitable for mounting on practically any type of vessel or tank.

**Features:** Offered in choice of either single or 3-phase motors, in standard open or explosion-proof types. Units are adjustable to any angle by means of one simple locking device.

**Description:** Shafts and propellers of Typhoon portable mixers are stainless steel. Propeller diameters range from 3 to 5" for direct-drive units, and from 7 to 11" for geared-drive units. Motors are rated 1/4, 1/2, and 3/4 hp. Compression-chuck nut joins propeller shaft to motor shaft. Direct-drive speeds are 1725 rpm, geared-drive speeds 420 rpm.

**Source:** Products of The Patterson Foundry & Machine Co., Dept. CP, East Liverpool, O. . . or for more information check CP 8717 on handy form, pages 2 and 3.

**Pilot light guarantee  
is in force through  
10,000 hours . . .**

neon lamp successfully resists vibration, short overloads

**Uses:** Neon-type pilot light for switchboards and instrument panels provided a cold light highly visible from all angles.

**Features:** Lamp is specially de-

*Do You Know —*

**H & K SPECIALIZES IN  
CHEMICAL PROCESS SCREENS?**

- Any Pattern — Shape or Sheet Material
- No Order Too Large or Too Small

H & K has made a science of meeting the exacting specifications of the chemical industry for screens used under heat, corrosive, acid, alkali and other similar applications. H & K screens are available with tolerances as close as  $\pm .0005"$ . Stainless steel is a specialty. Choice of patterns is practically unlimited. Accuracy of hole size and spacing, flatness and proper selection of materials are conscientiously controlled. Rough edges and burrs are held to a very minimum, assuring clean, efficient screens.

**The Harrington & King  
PERFORATING CO.**

5636 Fillmore St., Chicago 44, Ill.  
114 Liberty St., New York 6, N. Y.

Catalog No. 62  
tells the "hole" story  
—write for your copy.

When inquiring check CP 8718 on handy form, pgs. 2-3

## PIPE MARKERS



**anyone  
can use—  
everyone  
can read**

**QUIK-LABEL Pipe Markers conform to American Standards Association Pipe Identification System.** QUIK-LABELS come on handy cards . . . stick without moistening. Names of materials printed in large black letters on correct ASA background colors. CAN BE READ UP TO 75 FEET.

Markers for over 140 materials, including all materials listed in ASA Standard A13, available on Brady Stock Cards. Specials made to your order. QUIK-LABEL Pipe Markers are Silicone Plastic coated to resist dirt, grease, fumes, moisture . . . indoors or out. Replace slow and costly painting and hand stenciling. Exclusive Starter-Strip automatically releases part of label for fast peeling. QUIK-LABELS mark your pipes so that anyone who can read will know what's in them. QUIK-LABELS leave no room for doubt . . . or tragedy. Write for useful literature and FREE SAMPLES today.

**FREE  
SAMPLES**

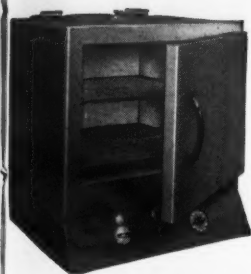
**W. H. BRADY COMPANY** Established 1914

Manufacturers of Self-Sticking Tape Products

Chippewa Falls 10, Wisc. Distributors in 125 cities

When inquiring check CP 8719 on handy form, pgs. 2-3

## GREATER HEAT UNIFORMITY! HUPPERT MODEL 5700 OVEN



Write for literature covering our complete line or recommendations to meet unusual requirements.

Scientifically designed Huppert double venting system maintains continuous heat equalization throughout the oven . . . removes fumes and gases. Latest type thermostat control maintains  $\pm 2\%$  accuracy within the range of 75°—500°F. Built-in timer regulates heating schedules. This oven meets all laboratory requirements for precipitation, ash determination and general chemical use. Built to stand up under continuous small unit production heat treating. All steel, with explosion-proof door latches. I.D. 20" x 15" x 19" —O.D. 24" x 26 1/2" x 24". 110/220 Volt, Single Phase, A.C.

MODEL	WATTAGE	TEMPERATURE RANGE	PRICE
5700 LT	1400 Watts	80 to 350° F. (26 to 180° C.)	\$140.00
5700 MT	1800 Watts	80 to 400° F. (26 to 204° C.)	140.00
5700 HT	2400 Watts	80 to 500° F. (26 to 260° C.)	140.00

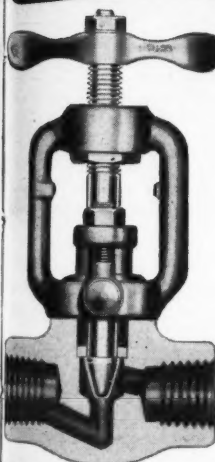
For one hour timer, add \$10.00

## K. H. HUPPERT CO.

6822 COTTAGE GROVE AVENUE CHICAGO 37, ILLINOIS

When inquiring check CP 8720 on handy form, pgs. 2-3

## PRECISION REGULATION Edward Instrument Valves



New Edward Fig. 952 series instrument valves, so compact they fit limited spaces in such hook-ups as panel boards and manifolds, give precision regulation for meter, gage, regulator, by-pass and instrument lines of all types. Forged steel, globe or angle. Rated 6000 lb WOG, 1500 lb 850 F in carbon steel. Also in stainless steels with higher ratings.

- No bonnet joint to leak.
- Swing bolted gland for easy packing.
- Needle point stem, fine pitch threads for accurate regulation.

WRITE FOR NEW BULLETIN

Bulletin 491, with full details, is yours for the asking.

## Edward Valves, Inc.

SUBSIDIARY OF ROCKWELL MANUFACTURING COMPANY  
EAST CHICAGO, INDIANA

When inquiring check CP 8721 on handy form, pgs. 2-3

JULY, 1950

## PROCESSING EQUIPMENT

signed for applications where vibration or temporary overloads might be fatal to filament-type lights.

**Description:** Completely enclosed in a plastic case, pilot light can be quickly mounted through a 1/2" hole in mounting surface. Maximum extension behind panel is 1-1/2". For high temperature applications, special nylon housing is available. Standard color is red, although other colors can be supplied. Equipped with 4" tinned leads, lamp may be connected into any 75-150v ac or dc source.

Models are made with special resistances for specific voltages. Lamp is guaranteed for a minimum of 10,000 hours; temporary overloads will not burn it out.

**Source:** "Omni-Glow" pilot lights are products of Industrial Devices, Inc., Dept. CP, Edgewater, N. J. . . . or for more information, check CP 8722 on handy form, pages 2 and 3.

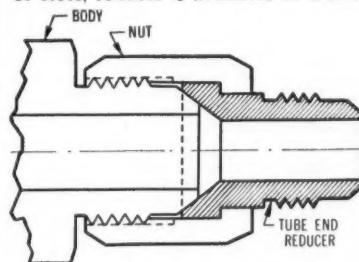
### Reducer lends flexibility to maker's tubing system . . .

converts any standard Triple-lok fitting to a reducing type

**Uses:** Tube end reducer for manufacturer's line of Triple-lok fittings; converts any standard Triple-lok fitting (37° flare, steel) to a reducing type.

**Features:** Reducer offers flexible tubing system with optimum sizing in all lines.

**Description:** Attached with standard nut to the fitting tube end, reducer provides a flared nose for smaller tube size and threads for smaller nut. Made of steel, reducer is available in 8 sizes:



Reducer made in brass or steel 3/8", 1/2", and 3/4" to 1/4" or 3/8" tube; and 3/4" to 1/2" and 1" to 3/4" tube.

A brass tube end reducer in same sizes is available for use with maker's line of Triple brass fittings used with copper tubing.

**Source:** Reducers are made by The Parker Appliance Company, Dept. CP, 17325 Euclid Ave., Cleveland 12, O. . . . or for more information check CP 8723 on handy form, pages 2 and 3.



## Tops for broad-range CHEMICAL FILTRATION

NFM VINYON† and VINYON N† are excellent general purpose filter cloths. They are available in a variety of weaves and in any desired standard width from 26" through 72" or as made up filter element covers.

Over Forty Years of weaving experience have given us the "know how" so necessary to the production of top quality Industrial Filtering Fabrics. We weave all of our Synthetic Fiber Cloth including Glass, Nylon, ORLON\* (an acrylic fiber cloth), Saran, VINYON†, and VINYON N†.

Write us about your requirements, we'll be glad to send test cloths, if you are not sure which cloth material is best.

\*TM — E. I. duPont de Nemours

†TM — C & C

"Excellent Resistance—No Attack" are the operating reports when these filter cloths are used for filtering:

### ACIDS

SULPHURIC  
HYDROCHLORIC  
NITRIC  
HYDROFLUORIC  
AQUA REGIA

### CAUSTICS

SODIUM HYDROXIDE  
POTASSIUM HYDROXIDE

and

CHLORINE or BROMINE WATER  
SILVER NITRATE  
TANNIC ACID  
MANY OILS, FATS and WAXES



Weavers of Industrial Filter Media for over Forty Years

## The National Filter Media Corp.

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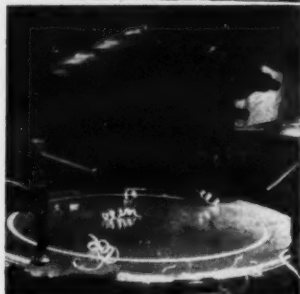
Johannesburg, South Africa  
Edward L. Bateman

When inquiring check CP 8724 on handy form, pgs. 2-3

## Important steps in the building of ALUMINUM Tanks



1. Aluminum plates are delivered to the shop yard. From here, they go to the layout shop where they are marked from templates. After marking, the plates are trimmed to exact size.



2. This view shows one of the machining operations. In the shop, the aluminum plates are rolled to the required shape and fittings and connections are machined to the proper dimensions. Here, too, the roof plates are dished to the proper curvature.



3. In this operation, the lower ring of the shell is being welded to the aluminum bottom.

4. This view shows one of the vertical welds made during erection. The entire tank is erected in the field by experienced crews.



5. Field erection is completed and the tanks are ready for service. These six aluminum tanks are located at the Institute, W. Va., plant of the Carbide and Carbon Chemical Corporation.

These views demonstrate that we know how to fabricate and erect structures of aluminum. We're also familiar with other corrosion-resistant alloys like stainless steel, monel, and Hastelloy. Let our nearest office offer quotations the next time you need equipment made of corrosion resistant alloys.



## CHICAGO BRIDGE & IRON COMPANY

Atlanta 3 ..... 2107 Healey Bldg.  
Birmingham 1 .... 1333 North Fifth St.  
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Chicago 4 ..... 2116 McCormick Bldg.  
Cleveland 15 ..... 2212 Guildhall Bldg.  
Detroit 26 ..... 1535 Lafayette Bldg.  
Houston 2 .. 2151 National Standard Bldg.

Los Angeles 17 . 1536 General Petroleum Bldg.  
New York 6 ... 3314—165 Broadway Bldg.  
Philadelphia 3 ... 1650—1700 Walnut St. Bldg.  
Salt Lake City 4 .. 507 West 17th, South St.  
San Francisco 4 ..... 1545—200 Bush St.  
Seattle 1 ..... 1307 Henry Bldg.  
Tulsa 3 ..... 1649 Hunt Bldg.

Plants at BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

When inquiring check CP 8725 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

**Dehumidify small area with semi-portable 1/8 hp unit . . .**

prevents mildew, rot and rust; quiet in operation

**Uses:** For small capacity requirements. Protects finished products and those in process from damage by mildew, rot, mold or rust. Also eliminates delays in working schedules brought about by hygroscopic nature of materials being handled.

**Features:** Compact. Quiet in operation. Compressor is hermetically sealed.

**Description:** Unit is semi-portable and is equipped with a 1/8 hp motor. Under room conditions of 80° and 70% relative humidity, it is capable of removing 18 pints of water from air every 24 hours. Assembly is enclosed in a gray metal cabinet that is 13 1/4" wide, 17 1/4" long and 22 1/2" high.

In operation, fan draws warm, humid air over chilled surface of solder-dipped copper evaporator coil. Moisture from air is condensed and collected on coil and drained away. Cool air is then passed over warm condenser surface by forced circulation, and is recirculated around room.

**Source:** Carrier Corp., Dept. CP, Syracuse, N. Y. . . . or for more information check CP 8726 on handy form, pages 2 and 3.

**Location of fluorescent fixture trouble simplified . . .**


tester checks entire fixture through starter socket

**Uses:** Tester for fluorescent fixtures quickly locates the trouble and indicates whether it is in circuit, tube, or starter.

**Features:** Fits into starter socket for all 3 tests; where starter socket is concealed behind fixture tube, extension adapter provides clearance.

**Description:** Eliminating tedious trial-and-error replacement of tubes and starter in faulty fluorescent fixtures, tester quickly locates the source of trouble, gives proof of tube, starter, and circuit condition. Pocket-size tester is available in 2 capacities: 1) for fixtures with 15-40 watt tubes; and 2) for fixtures with 85-100 watt tubes.

**Source:** "Flur-Test" fluorescent fixture tester is a product of Ideal Industries, Inc., Dept. CP, 5073 Park Ave., Sycamore, Ill. . . . or for more information check CP 8727 on handy form, pages 2 and 3.



**AIR-POWERED  
IMPACTOOL**

**pays for itself  
in  
1 1/2 hours use!**

• A chemical plant had to loosen and tighten 2 1/2" electrode clamp bolts on a phosphate furnace every 4 hours. The job was done previously in 12 minutes by 3 or 4 men with a ten foot open-end wrench. Now a large Impactool, suspended for 1 man operation, does the job in 3 minutes.

Through reduced furnace down time, labor savings, and material savings (no longer necessary to burn or cut off "frozen" brass nuts) the company reports that the Impactool, costing \$700, paid for itself in 1 1/2 hours of use.

Ideal for use on equipment where corroded, frozen, or rusted nuts must be removed and driven up tightly. Impactools are available in a complete range of sizes to handle everything from the smallest nut up to a 4" diameter bolt-size nut! Call, wire, or write your Ingersoll-Rand branch office today for complete information and a convincing demonstration in your own plant, on your own jobs.

**Ingersoll-Rand**

504-B

11 Broadway, New York 4, N. Y.

When inquiring check CP 8728 on handy form, pgs. 2-3

## Corrosion Proofing

IN SOME OF AMERICA'S LARGEST PLANTS

- \* "Prufcoat on floors and pump supports in sulfuric acid concentration plant—no failure after more than three years."
- \* "Entire concrete building coated with Prufcoat—no trace of failure due to blistering, peeling or chipping in over five years."
- \* "Prufcoat on concrete piers and steel beams subjected to muriatic acid fumes—no deterioration in over six years."

\* Actual Prufcoat reports. Names of these plants upon request.



The Prufcoat film formed after polymerization has virtually a zero acid number, saponification number and water absorption rate.

In case after case, in leading industrial plants throughout the country, Prufcoat has stopped profit-eating corrosion and cut painting maintenance costs—often as much as 70%. Write for Typical Prufcoat Protectograph, showing actual cost comparison between painting with Prufcoat and conventional paints. Or better still, pick the toughest corrosion area in your plant, apply Prufcoat, and see for yourself the amazing results. Remember: Prufcoat saves more because it protects more. Prufcoat Laboratories, Inc., 63 Main St., Cambridge Mass.



**SPECIFICATIONS**

- ✓ Acid-Proof
- ✓ Alkali-Proof
- ✓ Alcohol-Proof
- ✓ Oil-Proof
- ✓ Water-Proof
- ✓ Flame-Proof

**Applies Like Paint to Masonry, Metal, Wood**

When inquiring check CP 8729 on handy form, pgs. 2-3

CHEMICAL PROCESSING

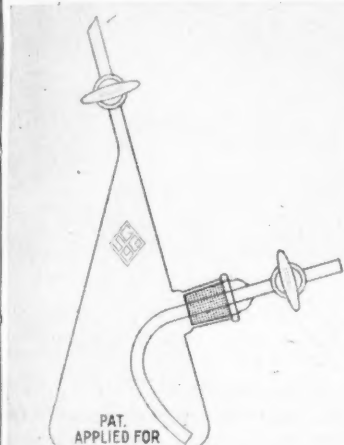
## PROCESSING EQUIPMENT

### Perform many lab operations with flask-separatory funnel . . .

pyrex glass apparatus permits drawing off light liquids; saves time and materials

**Uses:** For general laboratory work; especially convenient in weighing, drying, dissolving, mixing, concentrating, precipitating, cooling, heating, melting, boiling, evaporating, crystallizing and similar services.

It may also be used as a separatory funnel for both light and heavy liquids; for determining the fatty acid content of soaps; and for operations which must be carried out in the presence of an inert gas.



Flask-separatory funnel

**Features:** In standard separatory funnels, only the heavy liquid can be drawn off. In this apparatus light liquids may also be drawn off, in which case the flask is not turned upside down but, instead, a heavy liquid is introduced through the side tube until the light liquid is expelled through

the stopcock which is located at the top of the flask.

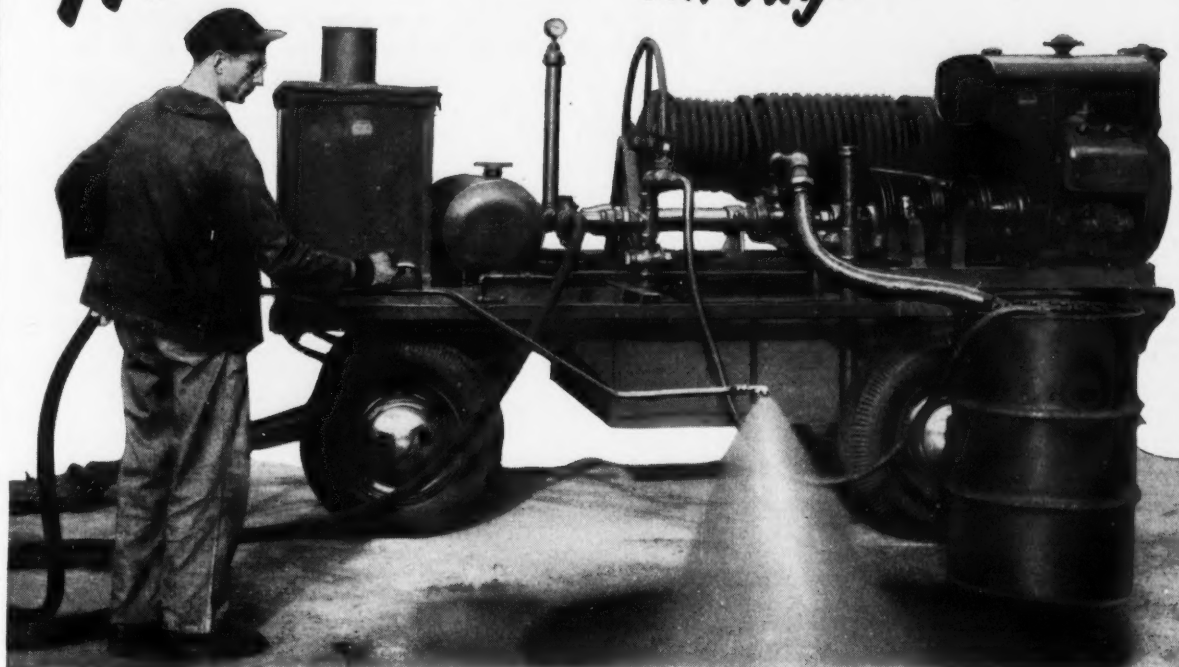
**Description:** For example, here is how this apparatus may be used to determine the fatty acid content of soap. Weigh the light weight flask on an analytical balance, then introduce 5 to 10 grams of soap through the side opening. Reweigh the flask to determine the weight of the soap. Dissolve the soap by adding water (under heat, if necessary) and separate the fatty acids in the usual manner with acid. Depending upon the analytical method used, the fatty acid may, or may not be extracted with ether. By turning the vessel upside down, it becomes a separatory funnel and the water layer can be drawn off through the stopcock in the same manner as in the separatory funnel.

The fatty acids can be washed with water in the apparatus, and while in the same flask, be determined either by titration or, if desired, gravimetrically after drying. Drying may be carried out by passing a heated indifferent gas through the apparatus, eliminating the use of alcohol for the drying procedure.

Analysis by extraction is far more accurate and rapid than when following customary procedures, since all operations (including the evaporation of ether) are carried out in the same flask. Using one vessel only, instead of having to transfer the contents to a number of different flasks, also eliminates the risk of spilling fatty acids and ether. This accounts for the fact that results of determinations show no errors due to loss of fatty acids on walls of a number of different glass containers.

**Source:** Combination flask and separatory funnel is a development of Scientific Glass Apparatus Company, Dept. CP, Ackerman St., Bloomfield, N. J. . . . or for more information check CP 8730 on handy form, pages 2 and 3.

# NEW ROOF...through a Hose!



## Here's the Pump that Does the "Impossible"

● What *other* pump could do this: move "cold-application" roofing from container drums through 180' of pipe coil for heating, then to the roof through 400' of 1" high-pressure hose—and *still* have sufficient force for spraying? *Moynos* are doing it every day on machines like that above.

It's the Chausse Roofers Spray, made by W. G. Chausse Co., Detroit. Handling 15 g.p.m. at pressures of 200 to 250 p.s.i., it sprays *faster* than men can spot and unroll the felt. And, in the morning, after standing idle many hours, it *clears* the hose without difficulty.

**AMAZING PERFORMANCE.** Moyno's "progressing-cavity" action is *truly amazing*. It self-primers; creates nearly perfect suction vacuum; delivers positive pressure without pulsation; reverses by reversing rotation. Moynos pump *virtually anything* that will push through a pipe—pass solids in suspension; resist chemicals, abrasives—stand up and *keep going* where other pumps have failed.

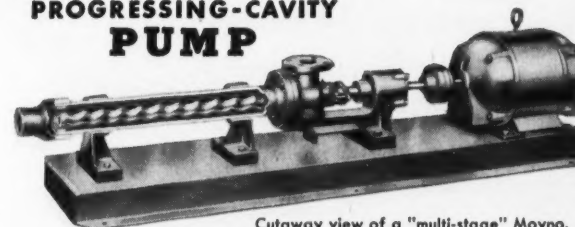
If you think all this sounds *too good* to be true, call in your Moyno Man. Or write for Bulletin C-30-P. We'll be *glad* to mail it free.

### WHAT CAN IT DO FOR YOU?

**R & M**  
**MOYNO**  
PROGRESSING-CAVITY  
PUMP



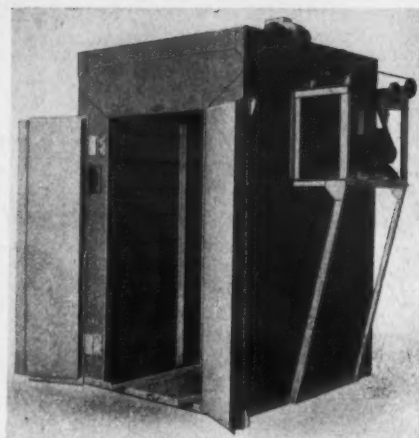
NO PISTONS  
NO VALVES  
NO HIGH-SPEED  
IMPELLERS



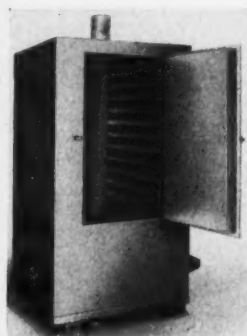
Cutaway view of a "multi-stage" Moyno, showing how rotor and stator work together for continuous pumping action.

**ROBBINS & MYERS, INC.**  
• MOYNO PUMP DIVISION •  
SPRINGFIELD 99, OHIO • BRANTFORD, ONTARIO  
MOTORS • FANS • MOYNO PUMPS • FOUNDED 1878

When inquiring check CP 8731 on handy form, pgs. 2-3

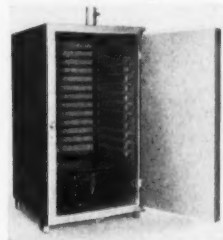


Truck Oven — gas, oil, electric or steam; 18 sizes.



Cabinet Oven —  
gas or electric;  
3 sizes.

Bench Oven —  
gas or electric;  
3 sizes.



**Now! Drying Controlled  
Closer than Ever Before**

## in the New GEHRICH RECIRCULATING OVENS

This new line of standard ovens assures controlled uniformity of drying, baking, curing or dehydrating to 500° F. within close temperature limits. High speed, cross-flow air recirculation and proper ventilation, with full temperature and operating safety controls are provided.

These Gehrich Ovens have been especially designed for heat processing of chemicals, rubber, pharmaceuticals, ceramics, fabrics, organic finishes, molds and other materials in both laboratory and production.

The ovens are built of aluminized steel panels, insulated with mineral wool. Bench and cabinet ovens are provided with rack angles for tray loading and may be gas or electrically heated. Truck ovens may have side angles; they may be direct gas or oil, indirect gas or oil, electric or steam heated.

Bulletins setting forth their design and performance advantages for the asking.

**GEHRICH OVEN DIVISION**

**W. S. ROCKWELL CO.**

220 Eliot Street

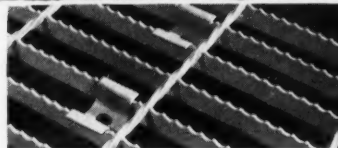
Fairfield, Conn.

When inquiring check CP 8732 on handy form, pgs. 2-3

## Confident safety...

**with BLAW-KNOX Electroforged STEEL  
RUNNING BOARDS, BRAKE STEPS, PLATFORMS**

Non-slip **TWISTED CROSS BARS** give extra strength and confident safety for workers. They're electrically forged right into the bearing bar for rigid one piece construction. Slightly roughened surface provides extra traction.



**SERRATED BEARING BARS** prevent slipping in any kind of weather. The "teeth" grip workers' shoes firmly to give the confidence that comes with sure-footedness. The clip, while very simple in design, provides a safe, sure connection that is exceptionally strong.

**ELECTROFORGED INTO ONE PIECE**  
for Strength and Safety

Each panel is fabricated into one solid, permanently fused piece—each individual joint is electroforged into a union that is actually stronger than the surrounding metal. Electroforging insures long life *plus* elimination of accident-causing hazards!

WRITE FOR BULLETIN 2328 for complete details.

**BLAW-KNOX DIVISION of Blaw-Knox Company**  
2076 Farmers Bank Bldg., Pittsburgh 22, Pa.

**BLAW-KNOX ELECTROFORGED  
STEEL GRATING**

When inquiring check CP 8733 on handy form, pgs. 2-3

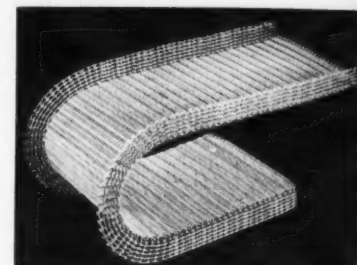
## PROCESSING EQUIPMENT

**Form, join metal belts to any  
size; handle bulk, unit loads  
through processing . . .**

accurately formed helical or spiral wires produce belts in any ductile metal best suited for service

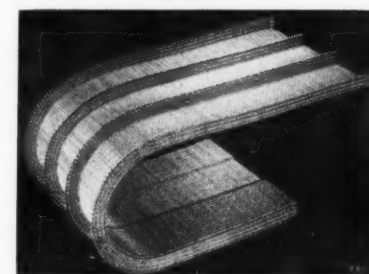
**Uses:** For the safe handling of fine, coarse, heavy, granular, soft, fibrous, plastic, fragile or readily marked materials; for sorting, sieving, classifying and similar operations. Applications include coating, cleaning, conveying, cooling, drawing, core baking, firing pottery, heat treating, sintering, washing. Typical applications are handling heavy bottles and glass blocks.

**Features:** Manufactured by a process in which accurately formed helical or spiral wires produce a continuous metallic fabric 1" to 20', or more, in width and in any length desired. Construction permits free circulation or hanging action between the units composing the weave. No bending stresses are set-up within the wires to cause breakage.



Universal belt with retaining edge

**Description:** Belts are made endless, when installed, by simply joining the two ends together with a unit of the weave. Thus, it is impossible to detect where the joint is located. Joining is quickly accomplished and requires no special tools or equipment.



Cord belt with flexible dividers

Belts have the longitudinal flexibility of leather, canvas or rubber. Various weaves, meshes and wire diameters give numerous percentages of open area for the drainage of liquids or circulation of air, gas or steam.

Some of the metals in which belts are available include low, medium or high carbon steels, alloy and stainless steels, tinned steel, brass, bronze alloys, aluminum, monel metal and nickel.

**Source:** Audubon Wire Cloth Corp., Dept. CP, Richmond St. and Castor Ave., Philadelphia, Pa. . . or for more information check CP 8734 on handy form, pages 2 and 3.

**Non-metallic exchangers  
resist plating acids . . .**

units are equipped with special pump requiring only 1/2 hp to deliver 80 gpm

**Uses:** Designed primarily for the metal cleaning and finishing industries.

**Features:** Impervious graphite construction makes the equipment immune from attacks by pickling and plating solutions, except those containing nitric acid and chromic acid. Heat transfer properties of impervious graphite make possible a light and compact unit. High heat transfer characteristic is utilized by circulating acid solution through

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

tubes, at high velocity, by a pump especially designed for this service.

Pump provides large flow, approximately 80 gpm, at low head. Efficient design holds power requirements to 1/2 hp.

Pump construction material has acid resistance similar to that of the exchanger. Seal is mechanical; leakage and frequent adjustment are avoided.

**Description:** This exchanger unit utilizes the advantages of acid resistance afforded by non-metallic materials. Fittings and connections are simple. Acid connections are all made with neoprene hose and stainless worm drive clamps.

These acid connections give flexibility and simplicity in dismantling for cleaning and servicing when necessary. Long curved hose runs are eliminated by use of elbows and tees with same acid-resistance as exchanger itself.

Exchanger is supplied with all internal connections made up, and the complete unit is run in and tested before installation.

**Source:** Nukem Karbate heat exchanger is built by Nukem Products Corp., Dept. CP, Buffalo 20, N. Y. . . . or for more information check CP 8735 on handy form, pages 2 and 3.

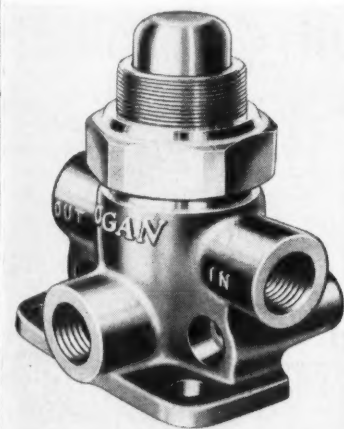
### Five types of operation possible with air control valves . . .

2- and 3-way, and 4-way types can be either base or side-mounted

**Uses:** Two- and 3-way, 2-position air control valves are for remote control of bleeder- and pilot-operated master valves, for control of single-acting air cylinders, etc. Four-way, 2-position types are for specialized applications, such as pilot-operating valves for remote control of pilot-operated master valves.

**Features:** Valves are designed for either base or side mounting. Choice of accessory parts may be added to valve body to attain any of five types of operation — push-button (finger or palm), toggle, cam, air cylinder, and foot.

**Description:** Both the 2- and 3-way and the 4-way valves have 1/4" ports. Design embodies a balanced piston which as-



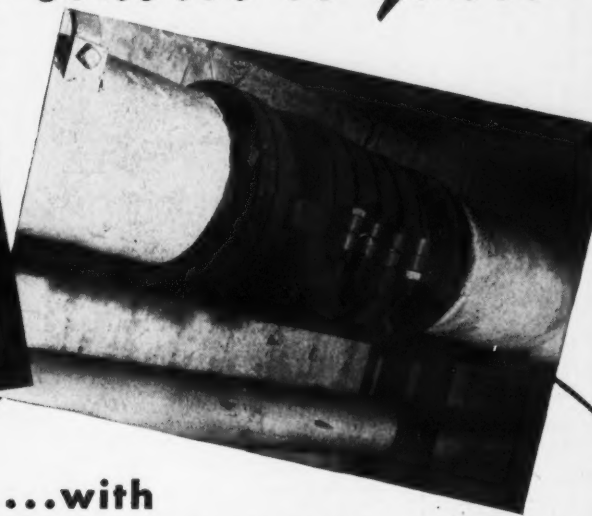
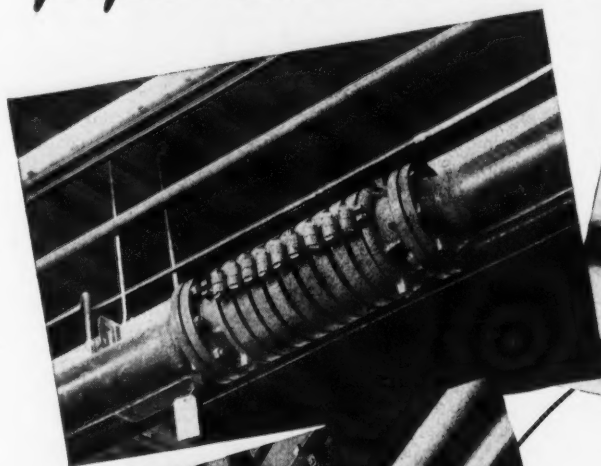
Two- and 3-way air control valve

sure ease of operation, has no valve seats or rod packings which might become worn, but incorporates piston cups which wipe the liner clean and thus give a better seal, and removable piston unit permitting valve to be serviced without disturbing piping. Valves are self-cleaning. All parts are corrosion resistant; all ports and internal passages are full pipe size.

**Source:** Air control valves are products of the Logansport Machine Company, Dept. CP, Logansport, Ind. . . . or for more information check CP 8736 on handy form, pages 2 and 3.

# MAINTENANCE-FREE

*pipe line motion control is yours*



...with

## CMH EXPANSION JOINTS

There's no longer any need to spend time and money on periodical maintenance of expansion joints. You can install CMH corrugated expansion joints and forget them . . . there's no packing to pull up or replace. In CMH expansion joints, the curvature of corrugations serves to minimize internal stresses and to provide balance of working stresses. This design coupled with advanced forming methods developed through years of research and experience assures long, trouble-free service.

For a new installation or for replacement of obsolete equipment, specify CMH expansion joints for the practical, dependable answer to control of axial, lateral or radial motion in piping.

*The illustrations show three typical installations of CMH Controlled-Flexing Expansion Joints.*

### A CMH TYPE to meet every need

CMH EXPANSION JOINTS are made as Free-Flexing for pressures up to 30 psi, Controlled-Flexing for pressures up to 300 psi and Flexoniflex for pressures up to 1500 psi, temperatures to 1600° F. Sizes range from 1/4" to 30" I. D. and larger. Available in copper, stainless steel or other alloys with flanged or welding ends.

Flexon identifies CMH products that have served industry for over 48 years.



## CHICAGO METAL HOSE Corporation

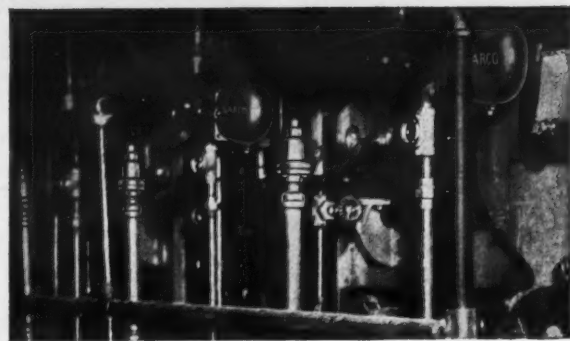
1319 S. Third Avenue • Maywood, Illinois • Plants at Maywood, Elgin and Rock Falls, Ill.  
In Canada: Canadian Metal Hose Co., Ltd., Brampton, Ont.

# CMH

## ONE DEPENDABLE SOURCE for every flexible metal hose requirement

Convuluted and Corrugated Flexible Metal Hose in a Variety of Metals • Expansion Joints for Piping Systems  
Stainless Steel and Brass Bellows • Flexible Metal Conduit and Armor • Assemblies of These Components

When inquiring check CP 8737 on handy form, pgs. 2-3



## THE *Why* AND *How* OF AIR VENTING

There are two vital reasons why air should be removed at the point where it collects.

First—an air steam mixture always has a lower temperature than pure steam at the same pressure. Steam temperature at 15 psi is 249°F, but mixing 50% of air would reduce this to 212° F, equivalent to 0 psi pressure.

Second; and more serious, the air collects on the heated surface and insulates it from the hot steam, reducing output.

### THE SOLUTION

First, select the right steam trap. The Sarco No. 9 Thermostatic for instance is wide open when cold. It lets all the initial air out fast. Other Sarcos let air out too, but only at the point where they are installed.

So the next step is to put in Sarco Air Vents at suitable spots in the lines—at the farthest point from entry of steam in process equipment—and at many points in your heating lines.

This is a subject of renewed interest because Sarco has recently designed a complete line of vents and made available special technical data on the subject.

ASK FOR CATALOG No. 275

269

**SARCO**  
SAVES STEAM

IMPROVES PRODUCT QUALITY AND OUTPUT

**SARCO COMPANY, INC.**

Represented in Principal Cities

Empire State Building, New York 1, N.Y.  
SARCO CANADA, LTD., TORONTO 5, ONTARIO

## PROCESSING EQUIPMENT

**Quick change-over and clean-up of process mill advantages in lab control work . . .**

stainless steel unit needs no special foundation; capacity is 8-20 gph or more

**Uses:** For processing chemicals, cosmetics, pharmaceuticals, paints, inks, plastics and similar materials. It is also adapted to grinding and processing certain anhydrous chemicals and earth materials.

**Features:** Constructed entirely of stainless steel, except for grinding stones. Accessibility of processing chambers and moving parts for quick, thorough cleaning makes possible rapid change-over from one material to another.

Easy clean-up and quick change-over make this mill particularly convenient to use in short experimental runs and in laboratory control work. Design provides freedom from vibration, light weight and ease of installation.

**Description:** Model MS mill has a capacity of 8 to 20 gph, depending upon the viscosity of the material to be processed, which may vary from water-thin to heavy paste consistency.

Diameter of mill is only 14" and height is slightly more than 3, including filling funnel. No special foundation is required. Power outlets and connections for water or steam for cooling or heating are all that is required for immediate use. Motor of 3 or 5 hp can be supplied in either open or explosion-proof type. Grinding principle involves the action of a Carborundum stone (rotor) revolving in a horizontal plane at high speed against a stationary stone (stator). Material to be processed passes between the two stones. Positive adjustment of space between stones is easily accomplished to within 0.001". Adjustments are quickly and exactly duplicated.

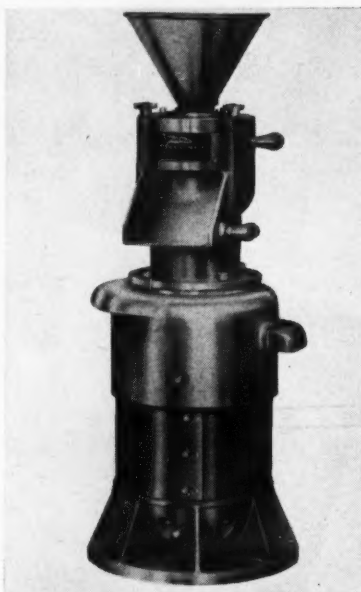
**Source:** Model MS stainless steel mill is available from Morehouse Industries, Dept. CP, 1156 San Fernando Rd., Los Angeles 65, Calif. . . . or for more information check CP 8739 on handy form, pages 2 and 3.

**Hoists handle loads up to 4 tons . . .**

hand operated units have high safety factor; load chain lubricated by wick applicator

**Uses:** For handling loads from 1/2 to 4 tons.

**Features:** Lightweight, no protruding parts, not bulky or cumbersome. Weston-type brake is furnished with a specially constructed lining, of uniform thickness, which insures maximum efficiency in distributing a load over

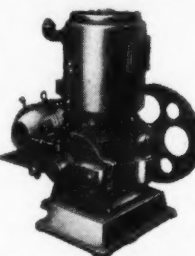


Stainless steel mill adjusts to 0.001" clearance between rotor and stator

## Get Greater Efficiency in High Vacuum Processes



Type SS — Single Stage Rotary Pump for vacuum to 5 mm. on tight system, for dry or wet work. Capacities — 6 to 375 c.f.m.



Type RP — Single Stage Rotary Piston Pump for vacuum to 10 microns; for dry or wet operations. Capacities — 17 to 845 c.f.m.

## BEACH - RUSS High Vacuum ROTARY PUMPS

- Faster Pump Down
- High Mechanical Efficiency
- Lowest Pressures
- Longer Service

For vacuum processing or packing, metal refining, sintering, coating, impregnating, clay deairing, electronics, nuclear research, instrument testing, air conditioning, laboratory and other vacuum operations—Beach-Russ Pumps assure faster, more efficient operation in every way. Their many superior, proven features of design and construction merit your earnest consideration. Write for Catalogs.

**BEACH-RUSS CO.**

46 Church St., New York 7, N. Y.

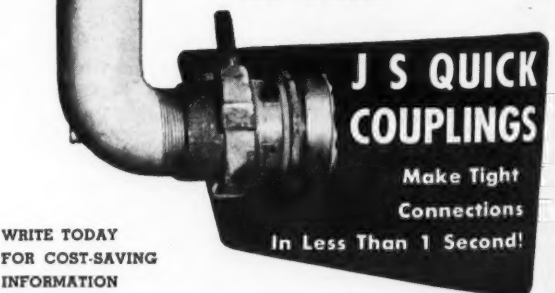
When inquiring check CP 8740 on handy form, pgs. 2-3

## NOW! TANKCAR HOOKUPS IN *One* MINUTE



Cast aluminum universal tank car unloading fittings eliminate 66% of handling weight. Provide fast, safe hookups — require no wrenches. Gasket and collar stay in position for fast hand run-on.

3", 4" — 6" standard outlet pipe connections. Other metals and sizes available.



**J S QUICK COUPLINGS**

Make Tight Connections

In Less Than 1 Second!

WRITE TODAY FOR COST-SAVING INFORMATION

**MEAD CORNELL and COMPANY**

BOX 2682-A

CLEVELAND 7, OHIO

When inquiring check CP 8741 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 8738 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

the entire braking area. Brake resists high temperatures, exposure to cold, wet and dusty atmospheres. Load wheel is of balanced design and can, when it begins to wear, be reversed. Chains are heat treated and have safety factor against high impact loadings.

Made of heat treated steel, hooks are built to slowly open without fracturing, when a hoist is excessively overloaded. Central lubrication reservoir has capacity to keep hoist lubricated for several years. A special reservoir with wick applicator is provided for lubricating the load chain.

**Description:** Simple in design. Sealed construction makes hoists adaptable to practically all industrial requirements. Bottom hook is attached to load chain by a special shackle, whose rocker action effects easy alignment of load. Wide throat opening of bottom hook reduces unbalanced loading when used with bulky slings.

Made in 1/2, 1, 1 1/2, 2, 3 and 4 tons capacities.

**Source:** Wright Hoist Division (American Chain & Cable Co., Inc.), Dept. CP, York, Pa. . . . or for more information check CP 8742 on handy form, pages 2 and 3.

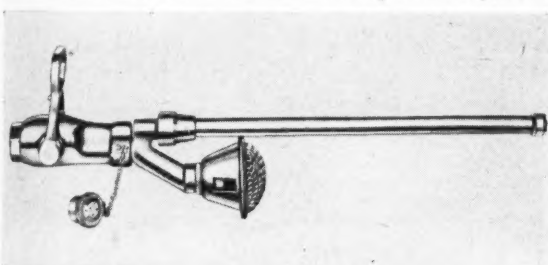
### Adapts maker's nozzle for foam fire-fighting . . .

handles any type fire that can be extinguished by water alone, or water mixed with foam agents

**Uses:** Device adapts maker's SG-48 WaterFOG nozzles for either solid-foam-stream or fog-foam fire-fighting.

**Features:** Handles any type of fire that can be extinguished by water alone, or water mixed with foam agents.

**Description:** Type "FF" foam extension units may be used with standard nozzles on 3/4, 1, or 1 1/2" fire hose lines. When inserted into these nozzles (illustrated), foam



Extension unit adapts maker's nozzle for foam sprays

in form of fog is discharged through lower head when valve handle is in "fog" position; foam in a solid stream is discharged through long upper barrel when valve handle is in "solid steam" position.

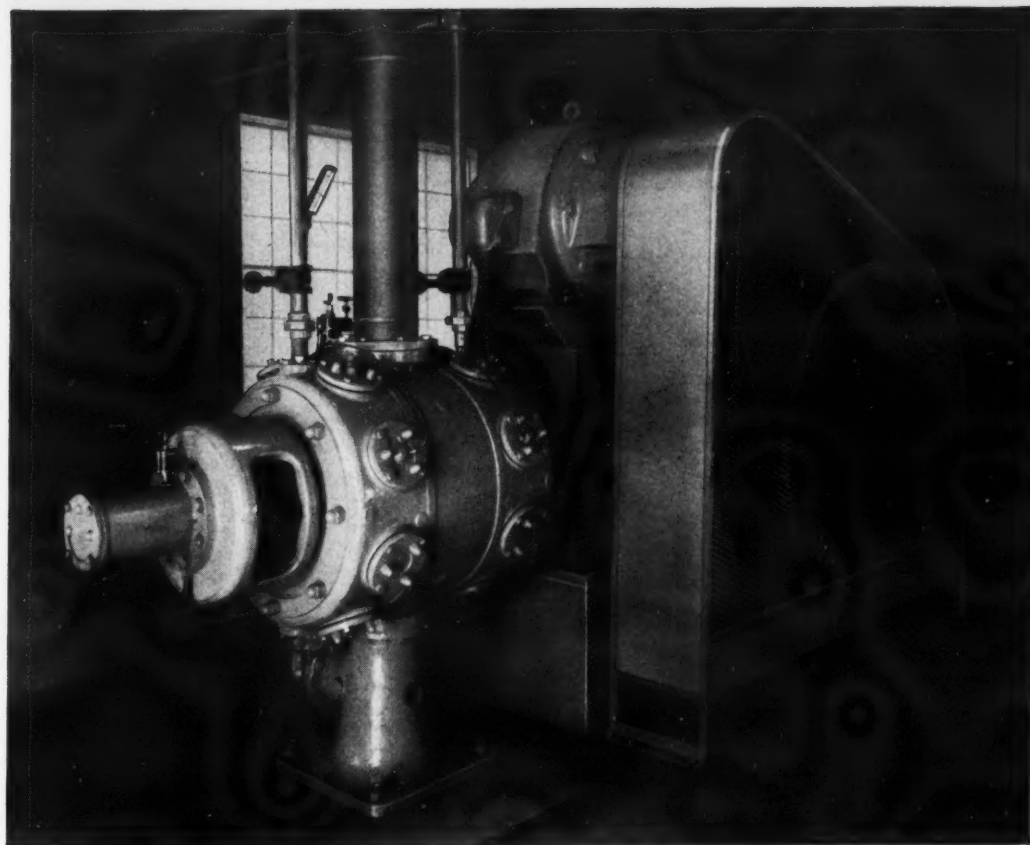
Foam-forming liquid can be automatically mixed with water and supplied to the "FF" unit by means of maker's eductor or proportioning system.

Nozzle alone will produce either a high-velocity fog or a solid stream of water. When used with another adapter, it discharges a low-velocity fog of water, or wetting agent mixed with water. The newer adapter has made it possible to produce two forms of foam and water sprays.

**Source:** Extension unit is a product of the Rockwood Sprinkler Co., Dept. CP, 38 Harlow St., Worcester 5, Mass. . . . or for more information check CP 8743 on handy form, pages 2 and 3.



Safety hoist



# oil free air

**with this CP Oil-less Compressor**

Where it is essential that compressed air be absolutely free from oil, to avoid injury to products, CP Oil-less Cylinder Compressors meet the most exacting requirements.

Piston and rod, completely supported by tail rod and outboard crosshead, are full floating, removing all weight from cylinder wall and stuffing boxes. This assures long life of segmented carbon piston rings, with no need for periodically rotating them.

These compressors are available in a wide range of sizes and ratings; in single and two-stage types; arranged for belt, motor or steam drive.

Write for Bulletin 728-8



**CHICAGO PNEUMATIC  
TOOL COMPANY**  
General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES  
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

When inquiring check CP 8744 on handy form, pgs. 2-3



## May we assist you, sir?

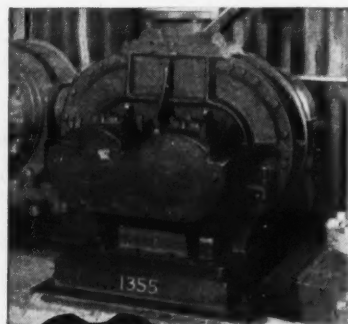
If you're on a merry-go-round about handling air or gas, R-C dual-ability can help you.

That's been our exclusive job for almost a century. We've developed the most extensive line of blowers, exhausters and gas pumps in the industry, with capacities from 5 cfm to 100,000 cfm.

We're the only builders offering that *dual choice* of both Centrifugal and Rotary Positive equipment. Thus, without bias, we can suggest units that meet most closely the requirements of the work to be done.

For new installations or replacements, look to us for your needs. Alert engineering teams up with modern construction to insure long-time, satisfactory performance of R-C equipment.

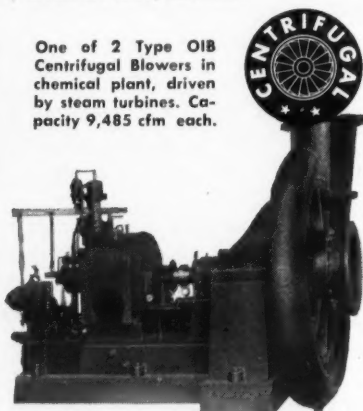
ROOTS-CONNERSVILLE BLOWER CORPORATION  
507 Richland Avenue, Connorsville, Indiana



ROTARY

Type RCD Rotary Positive Blower for chemical processing, with capacity of 300 cfm, V-belt driven by motor.

One of 2 Type OIB Centrifugal Blowers in chemical plant, driven by steam turbines. Capacity 9,485 cfm each.



# ROOTS-CONNERSVILLE

ONE OF THE DRESSER INDUSTRIES



When inquiring check CP 8745 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

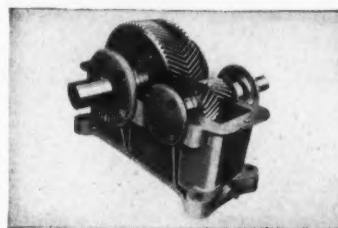
**Single reduction in speed reducers is 98% efficient . . .**

single, double, triple reduction units rated  $\frac{1}{2}$  to 1000 hp

**Uses:** For service in connection with conveyors, generators, blowers, pumps, machine tools, cranes, hoists, agitators and similar equipment.

**Features:** All shafts turn in anti-friction bearings. Output bearings of standard torque units are designed to carry medium overhung loads. Overhung load type units use double-row tapered roller bearings.

Gears are made of electric steel castings or high carbon steel forgings. Pinions and pinion shafts are cut in-



Herringbone gear reducer

tegrally from heat treated chrome-molybdenum steel. Efficiency is 98% in single reductions.

**Description:** Available in single, triple and double reduction units from  $\frac{1}{2}$  to 1000 hp, with center distances from 4 to 36".

**Source:** IMO herringbone-gear speed reducers are made by De Laval Steam Turbine Co., Dept. CP, Trenton 2, N. J. . . . or for more information check CP 8746 on handy form, pages 2 and 3.

**Pick-up wet objects easily with rough surface glove**

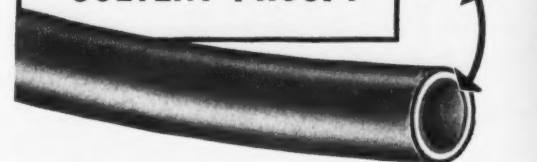
made in sizes 9, 10, 11 in black; snag and tear resistant

**Uses:** Designed to protect wearer, provide working comfort and a non-slip grip on wet, oily, hard to handle objects. Applications include pickling, plating, chemical plants, acid and alkali manufacture.

**Features:** Made with a roughened surface, which is an integral part of glove. Gloves have curved fingers, high tensile strength and are snag and tear resistant.

**Description:** Made in sizes 9, 10 and 11 in black. All gloves identified by an orange band at the cuff. Glove length is 14".

This unique compar tube in RESISTOFLEX HOSE is SOLVENT-PROOF!



Here's the really flexible, non-metallic line that can handle water-insoluble liquid and gaseous hydrocarbons with ease. Its high tensile compar tube provides high burst strength in addition to the remarkable impermeability to many solvents, oils, gases and chemicals which attack or swell other flexible synthetic materials. Just a few of the typical chemicals to which Resistoflex Hose is inert: Benzene Hexachloride

Carbon Tetrachloride . . . Ether . . . Chloroform . . . Carbon Disulphide . . . "Parathion" . . . Toluene . . . Chloropicrin . . . Trichlorethylene . . . Styrene Monomer . . . "Chlordane" . . . Dibutyl Phthalate . . . and others.

Resistoflex Hose also withstands vibration and constant flexing without fatigue. Can you use these advantages in your application? Write us about it, or for data. Sizes up to 1 $\frac{1}{2}$ " I.D. available, in bulk or with couplings.



**RESISTOFLEX CORPORATION**

Bellefonte 9, New Jersey

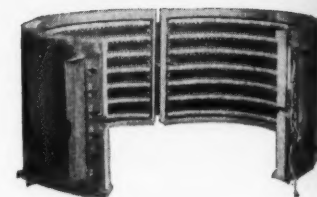
SYNTHETIC FLEXIBLE PRODUCTS AND PARTS FOR INDUSTRY

When inquiring check CP 8747 on handy form, pgs. 2-3

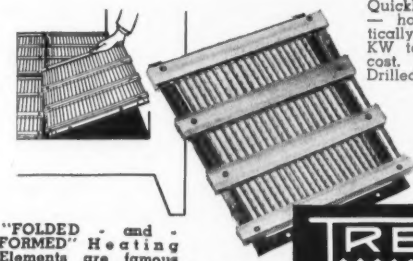
Use "FOLDED-and-FORMED" HEATING ELEMENTS *Two Ways*

**CUSTOM-BUILT JACKETS . . .**

Insulated jackets of "Folded-and-Formed" elements, made to your specifications — any shape or size — for kettles, furnaces, melting pots and similar units.



**STANDARD RACKS for Spot Heating in Your Equipment**



Quickly, easily installed — horizontally or vertically — to give 1.5 KW to 300 KW at low cost. Size 12" x 12". Drilled for mounting.

FIVE YEAR GUARANTEE at temperatures to 750° F. or 1350° F.

"FOLDED and FORMED" Heating Elements are famous for their amazing heating efficiency, freedom from maintenance and long life! Send for Bulletin 80-T and 72-TC.

**TRENT INC**

Electrically Heated Industrial Equipment  
235 LEVERINGTON AVE. PHILA 27 PA

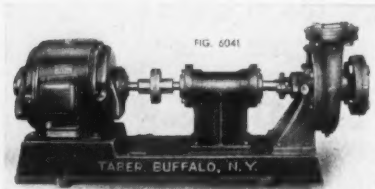
When inquiring check CP 8748 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## Performance RATINGS



PROCESS INDUSTRIES' requirements in pumps, Taber has found, thru long experience, are exacting and definite.



That is why a Taber Centrifugal Pump, built for a definite requirement, will always prove far superior to a stock or trade pump. • Taber features: a variety of impeller combinations for given-size casings; casings of various sizes for given-size yokes; over-size ball bearings, extra size shafts; extra deep stuffing boxes—all assembled and "Performance" Rated for final requirements of your job. • This is an indication of extreme flexibility and dependability of Taber Pumps. Also pump built of any metal or alloy found suitable by customer.

Write for Complete BULLETIN CL-339

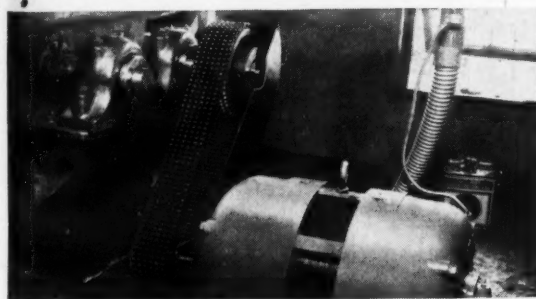
Please use business stationery. Taber Pump Co.

Est. 1859 320 Elm St., Buffalo 3, N. Y.

## TABER HIGHER PRACTICAL PERFORMANCE PUMPS

When inquiring check CP 8749 on handy form, pgs. 2-3

## Eliminate Production Delays



## Use Positive Drives

• Diamond Roller Chains deliver positive, non-slip power at constant speed ratios, assuring maximum output. They are not affected by temperature or atmospheric conditions and are equally effective on long or short centers at high or low speeds. Diamond Roller Chains are made in single and multiple strands for every drive requirement from fractional to several thousand horsepower. DIAMOND CHAIN COMPANY, Inc., Dept. 411, 402 Kentucky Ave., Indianapolis 7, Indiana.

Catalog 709 gives complete data. A copy sent on request.



When inquiring check CP 8750 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT



Rough grip, curved-finger gloves

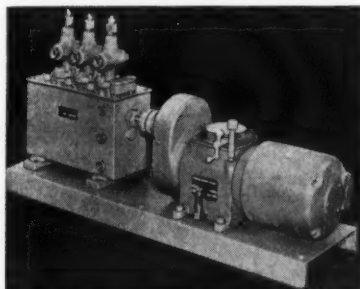
Source: Griprite gloves are made by B. F. Goodrich Co., Dept. CP, Akron, Ohio . . . or for more information check CP 8751 on handy form, pages 2 and 3.

## Chemical feeder adjusts up to 1 gal liquid per min. per feed . . .

pumps against pressures up to 300 lbs per feed

Uses: Large-capacity chemical feeder for pumping against pressures up to 300 lbs per feed.

Multiple units can be furnished with any number of feeds, operated by rotary, motor or lever drive; and pumping units can be of materials suitable to meet special requirements of



Only the pumping unit contacts chemical

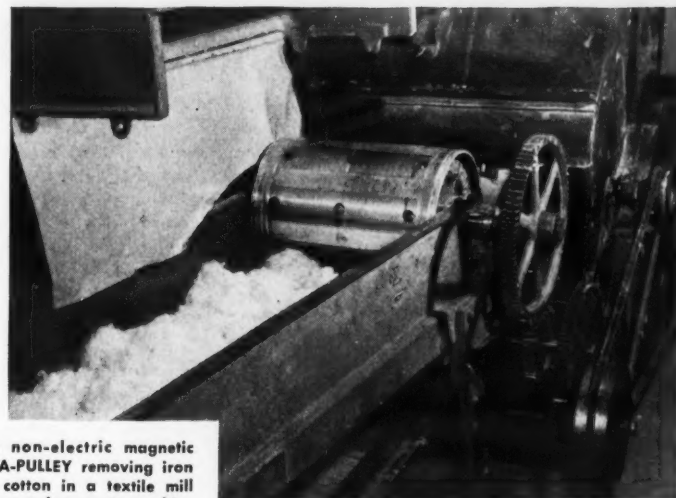
chemical, petroleum and other industries.

Features: Adjustable up to 1 gal liquid per minute per feed. Only the pumping unit comes in contact with the chemical.

Description: Similar in operation to other Manzel chemical feeders, automatically injecting the chemical in exact proportion to the amount of liquid being pumped.

Source: Manzel Division of Frontier Industries Inc., Dept. CP, Buffalo, N.Y. . . . or for more information check CP 8752 on handy form, pages 2 and 3.

You won't say **"DANG IT!"**  
if you **"DING" IT!**



Dings non-electric magnetic PERMA-PULLEY removing iron from cotton in a textile mill to prevent damage to machinery or fires from iron sparks.

NO matter what your job of separating magnetic and non-magnetic substances, whether for removal of tramp iron from materials in process or for purification of magnetic and non-magnetic substances, you will be money ahead to "Ding" the stuff—pass it over a Dings magnetic separator of the proper size and type to best handle your requirements. "Dinging" it is the term that many Dings customers apply to magnetic separation of their products.

It is not surprising that "Dinging" is synonymous with magnetic separation. Dings is the oldest and largest builder of magnetic separators in the business and has the world's most complete line of electric and non-electric magnetic separation equipment. This is your assurance that if you will submit your magnetic separation problems to Dings you will get the equipment best suited to your purpose and to your purse. The Dings magnetic analysis laboratory is prepared to help you find the best answer to your magnetic separation problem. The experience and facilities of the Dings organization, the high quality and variety of Dings products should not be overlooked when you need a magnetic separator.

## DINGS MAGNETIC SEPARATOR COMPANY

4731 W. Electric Ave.  
MILWAUKEE 46, WISCONSIN



Send for Catalog  
Ask for general  
catalog C-5000-A  
describing Dings equipment.  
For recommendations  
outline your requirements.

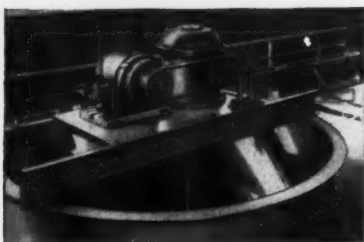
When inquiring check CP 8753 on handy form, pgs. 2-3



# Set to GO with NETTCO

## at SALEM OIL & GREASE CO.

The production of oils and greases to meet exacting industrial requirements calls for efficient agitating equipment. Salem Oil & Grease Co. of Salem, Mass., has employed Nettco Engineered Agitators for over twenty years to meet a wide range of mixing and sulphoning requirements. Here again, Nettco Agitators were selected because they produced the proper mix, conserve time and power, and hold maintenance to a minimum. For information on agitators to meet your own requirements, write **NEW ENGLAND TANK & TOWER COMPANY**, 93 Tileston Street, Everett 49, Mass.



For mixing thick, inert liquids, this Nettco WT-37 Agitator Drive, powered by a 25 HP motor, was selected to thoroughly agitate 4500 gallon batches in tanks 9' diameter, 10' deep. Results: Excellent.



Nettco T-27 drive, Nettco 52-A wooden-paddle stirrer, and Nettco-built tank—here's the right combination of standardized units for mixing heavy oils. Motor 5 HP. Tank: 8½' diam., 10' depth, 4000 gals. capacity.



The two special Nettco KG-11 Drives shown in the foreground are designed particularly for installations where the tank headroom is very limited. Employing heavy auxiliary thrust bearings to eliminate bearing overloads in the motor, and incorporating a built-in stuffing box in the mounting flange, these drives offer the best solution where tank size or construction does not permit our standard installation.

# NETTCO *Engineered* AGITATORS

When inquiring check CP 8754 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

### Cools small quantities of compressed air . . .

units for small users cool up to 20 or 50 Cfm

**Uses:** Pipeline aftercoolers for the small user of compressed air. Sizes for cooling up to 20 or 50.

**Features:** Compressed air is delivered cool, dry, and in small quantities.

**Description:** These vertical units, like larger models of this line, consist of an outer steel shell which encloses a tube nest through which the cooling water passes.

Hot air entering the cooling chamber is guided slowly about the cooling tubes from the intake at bottom left to the outlet at top center. Separated moisture drops, by gravity, to trap below bottom head, from which it is ejected as collected.

Smaller size is 30" overall, including legs, and cools up to 20 CFFAPM. Larger size is 48" overall, and cools 30 to 50 CFFAPM. Air inlet and outlet pipe sizes up to 1" may be specified for either size. Type V-907.

**Source:** Jas. A. Murphy & Company, Inc., Dept. CP, 5th and Vine Sts., Hamilton, Ohio . . . or for more information check CP 8755 on handy form, pages 2 and 3.

### 'Pulls' iron from liquids, slurries, powders . . .

material passes along chute and between magnetic "fingers"

**Uses:** Non-electric magnetic filter for removing fine iron contamination from liquids and slurries.

May be used with a vibrating feeder to clean tramp iron from fine flows of powder, or placed at end of a processing line to eliminate final traces of ferrous contamination.

**Features:** Open construction of magnetic chute and grid reveals when cleaning is necessary. Iron contamination is easily wiped from chute with a rag or scraper, and one-piece grid can be hosed off and replaced in a few seconds. Portable and compact.

**Description:** Unit consists of a stainless steel chute 12" wide, containing a series of powerful magnetic fields. Liquid or powder passes along this chute and between 124 upright magnetic "fingers" or spindles of the grid.

**Source:** Eriez Manufacturing Company, Dept. CP, Erie, Pa. . . . or for more information check CP 8756 on handy form, pages 2 & 3.

## PROMPT DELIVERY

### HERCULES Aero

(RUBBER CUSHIONED)

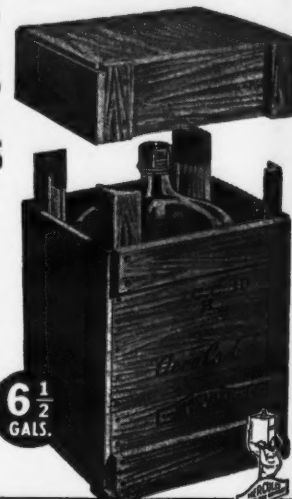
and

**HERCULES**  
(CORK CUSHIONED)

**CARBOY BOXES**

Available in

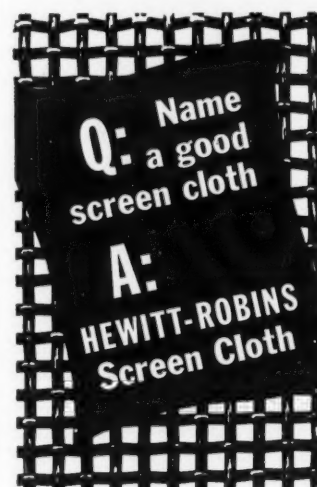
**5 & 13 gallon sizes**  
to comply with ICC-  
**IA. Available in 6 1/2**  
gallon size to comply with specification ICC-ID.



**NATIONAL BOX & LUMBER COMPANY**

HOME OF HERCULES CARBOY BOXES • NEWARK, N. J.

When inquiring check CP 8757 on handy form, pgs. 2-3



**BECAUSE** you increase the time between screen cloth changes—on any make of screen!

**BECAUSE** Hewitt-Robins Screen Cloth is made of Super-Gyraloy, the specially blended alloy steel wire that's the toughest, hardest screening surface ever developed.

**BECAUSE** Hewitt-Robins Super-Gyraloy Screen Cloth comes in the weave you want . . . the size opening you need.

**BECAUSE** its heat treatment and micro-structure make Super-Gyraloy highly resistant to abrasion

without sacrificing ductility. You can actually bend a wire of this cloth around its own diameter without fracture.

**SEND TODAY** for Bulletin No. 113-A. Fully describes Hewitt-Robins Super-Gyraloy Screen Cloth, 3/16" to 6" openings, made from #12 gauge wire to 5/8" rod in square and rectangular openings, flat top and non-blind weaves. Also in Gyraloy (spring steel) stainless steel, Monel metal, brass or enamel coated in any standard diameter of wire. Robins Conveyors Division, 270 Passaic Ave., Passaic, N. J.



When inquiring check CP 8758 on handy form, pgs. 2-3

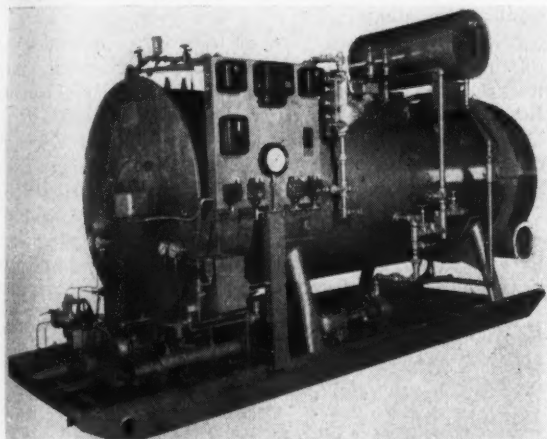
## PROCESSING EQUIPMENT

### Increase boiler's efficiency with better adjustment of fuel-air ratio . . .

gas, oil or combination gas-oil package-type generators offered in 15-150 hp range

**Uses:** For high and low pressure steam service within range of models covering hp rate 15-150. Designed for service where it is desired to use either gas or oil, or combination of gas and oil as fuel.

**Features:** "Iris Shutter" provides precision control of burner air by proper metering to match the firing rate, and accurately synchronizing air-oil adjustment through the entire burner firing range. To facilitate the adjustment of



Oil-fired low pressure package unit generator

fuel-air ratio on all modulated units, a linkage assembly is provided which permits independent adjustment of either blower air or fuel.

Method of lubrication for the atomizing air compressor eliminates manual adjustment of rate of lubrication. Boiler stampings are now found on outer shell, eliminating necessity of removing cover plates to permit boiler inspector to examine the stamping.

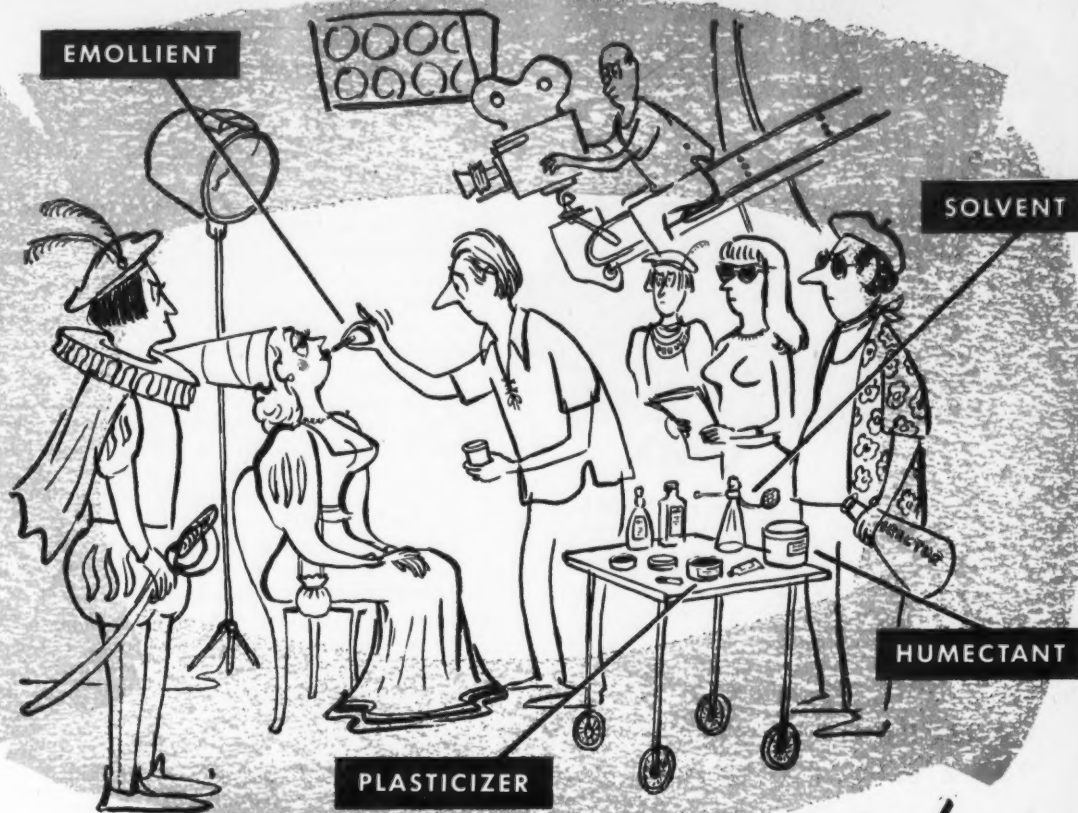
**Description:** All models have welded construction of pressure vessels, both high and low pressure. All units have sufficient connections to provide either left or right hand installation, that is, panel board, gauge glass, feed water pump, may be located at either side of the packaged steam generator.

High pressure models are equipped with a double blow-down on each end of the boiler. A below-the-water-line connection provides indirect heating of domestic or process water on all high pressure boilers. Low pressure units are available with immersion domestic water coils. All units have a minimum length of oil piping. Closer placement of heating components permits more efficient handling of heavier and cheaper residual oils.

Gas-fired models are equipped with motorized gas shut-off valve in place of conventional solenoid valve for instant and positive shut-off of main gas flow when required, as well as slow opening action for lighting off.

Insulation applied to boiler shell is Fiberglas, cemented with special adhesive to insure neat appearance. Electronic type combustion safety controls are standard throughout entire line.

**Source:** Power Steam-Pak generators are built by York-Shipley, Inc., Industrial Div., Dept. CP, York, Pa. . . . or for more information check CP 8759 on handy form, pages 2 and 3.



*Modern fountain of youth... Glycerine!*

**TODAY'S** woman can do much to retard the fleeting years—thanks to a host of familiar beauty preparations! Similarly, she owes a vote of thanks to versatile U.S.P. Glycerine, said by one cosmetic authority to have "the quality of imparting brilliance, softness, and delicate coloring to the skin, when properly applied." Millions of pounds flow into the cosmetic industry yearly where it serves as a humectant, vehicle, emollient, softener, "bodying" and spreading agent—in almost every conceivable type of cosmetic preparation! Why? Because U.S.P. Glycerine is outstandingly safe for human use and because no single material has the properties to replace Glycerine in its multiple applications! You'll find the story of these many applications clearly outlined in our booklet "Why Glycerine for Drugs and Cosmetics?" Write for your copy today!

**TOMORROW**—U.S.P. Glycerine will be called upon to perform a variety of tasks, often in a single cosmetic product. Not only because Glycerine improves the quality and performance of toiletries—but also because it exerts beneficial effects upon the skin! Indeed, a European survey has already indicated that there is no adequate substitute for Glycerine in cosmetic preparations. Glycerine—the time-tested component—is frequently a major ingredient in new compounds . . . for example in the insect-repellent cosmetics now undergoing extensive tests by the U. S. Bureau of Entomology and Plant Quarantine. A typical cream formula and condensed progress report on the subject will be sent on request. (Please use your company letterhead.) Here again, in cosmetics that are "news"—nothing takes the place of Glycerine!

*Nothing takes the place of Glycerine*



**GLYCERINE PRODUCERS' ASSOCIATION**  
295 Madison Avenue, New York 17, N. Y.

PLEASE SEND A COPY OF

**"WHY Glycerine for Drugs and Cosmetics?"**

Mr. \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

When inquiring check CP 8760 on handy form, pgs. 2-3

# Little fellows DO THE BIG JOBS



Eastern Centrifugal Pumps are CLOSE-COUPLED and available in SPECIAL METALS. Over 100 models to choose from to pump from 0-70 psi, 0-70 gpm. Economical and trouble free.

FOR EASTERN'S NEW CENTRIFUGAL CATALOG 100, WRITE TO DEPT. AF

**Eastern Industries Inc.**  
296 Elm St., New Haven, Conn.

When inquiring check CP 8761 on handy form, pgs. 2-3

## This New "Double-Check" Manifold

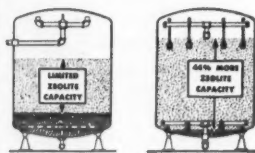


**installed at low cost in your present softener of any make will greatly increase your soft water output**

Here is equipment, now in use in hundreds of plants, that is daily proving its ability to greatly step-up soft water output from zeolite softeners of any make.

It is installed quickly and at low cost. Soft water is immediately increased up to 44% per regeneration from the same type of zeolite you are now using. In many plants, the "Double-Check," when used with Elgin high-capacity zeolites, has increased soft water output three to ten times.

The diagrams tell the story: Elgin exclusive "Double-Check" manifolds prevent escape of zeolite, thus permit use of 44% more zeolite in same size softener; also mean faster, better back washing, better regeneration, more economical operation. Let us show you what can be done in your plant.



ORDINARY DESIGN—ELGIN DESIGN  
SAME SIZE UNIT—SAME TYPE ZEOLITE

## ELGIN SOFTENER CORPORATION

180 N. Grove Ave., Elgin, Ill.

### Water Conditioning for every need

Methods include water softeners, individually formulated chemical treatments, filtration, taste and odor correction, iron removal, etc. The Elgin approach is the direct, low-cost way. Write.

When inquiring check CP 8762 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

### Limits of refrigerant gas condensers are 10 to 50 tons . . .

one unit replaces conventional condenser and cooling tower

**Uses:** Refrigerant gas condensers are designed especially for use with Freon in air conditioning and industrial refrigerating applications.

**Features:** Operating on evaporative principle, condensers save 95% of the condensing water required by the shell and tube condenser method, and replace both conventional condenser and cooling tower, maker reports.

**Description:** Series consists of 5 standard units ranging in capacity from 10 to 50 tons refrigeration at 105°F Freon condensing temperature and 74°F atmospheric wet bulb temperature. Smallest unit has casing dimensions of 31 x 24 x 85-1/4" high while largest measures 94 x 30 x 93-1/4" high. Casing, fan, and eliminator construction is galvanized steel.

Condensing coils for Freon are copper tube, with copper fin or galvanized steel tube and fin. Weatherproof construction for outdoor installation is available.

**Source:** 5800 Series Aeropass refrigerant gas condensers are manufactured by the Niagara Blower Company, Dept. CP, 405 Lexington Ave., New York 17, N. Y. . . or for more information check CP 8763 on handy form, pages 2 and 3.

### Stainless steel bodies improve steam trap performance . . .

replace line of cadmium-plated steel bodies

**Uses:** Steam trap for working pressures to 400 lb and temperatures to 450°F.

**Features:** Bodies of Type 416 stainless steel bar stock provide improved resistance to abrasive wear and corrosion.

**Description:** Stainless steel bodies replace former line of cadmium-plated cold-rolled-steel bodies offered by manufacturer. Internal parts of traps are made of selected stainless alloys. Line of traps is more fully described and specified in company-issued Bulletin T-1739.

**Source:** Traps are product of Yarnall-Waring Company, Dept. CP, Mermaid Lane, Philadelphia 18, Pa. . . or for more information check CP 8764 on handy form, pages 2 and 3.

### As more circuits are demanded, just plug in additional multi-breaker units . . .

eliminates need for new equipment every time more power circuits are required

**Uses:** Multi-breaker units for use in maker's power distribution cut-out cabinets.

**Features:** Breaker units plug into cabinets as need for more circuits arises, eliminating requirement for new equipment every time circuit demand increases.

**Description:** NMO Panellette is a thermal-magnetic plug-in type breaker unit with capacity for 4 circuits. Units are rated 15, 20, 30, 40, or 50 amperes, and are interchangeable with the NMO Panelboard and MO 12 or MO 20 load centers. They are available for single-phase 3-wire, or 3-phase 4-wire systems.

Cabinet containing bus structure is 12" wide and 4 1/2" deep, and makes accommodations for five multi-breakers

for servicing up to 20 circuits. Main-line breaker is included in cabinet.

**Source:** Products of the Square D Company, Dept. CP, 6060 Rivard St., Detroit, Mich. . . or for more information check CP 8765 on handy form, pages 2 and 3.

### Free acid baths, plating tanks of contaminating metal parts with rotary magnets . . .

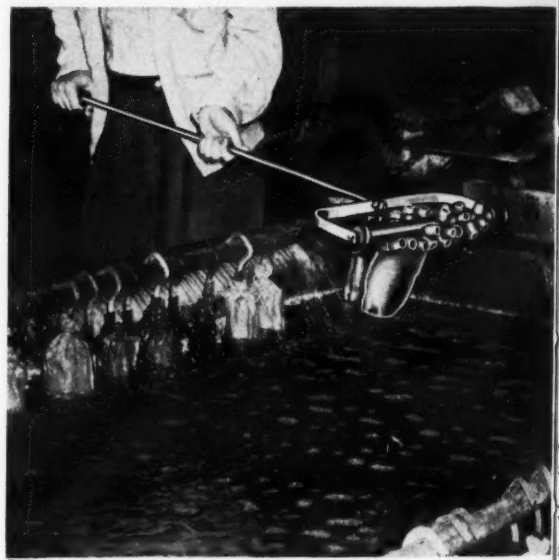
when immersed in tank they instantly attract, hold ferrous parts, but do not adhere to tank

**Uses:** For removing ferrous-parts and contamination from electroplating tanks, alkali baths, acid baths and in similar applications.

**Features:** Increased carrying capacity is provided by rotating magnetic tube. Quick, complete release of entire load at either end. Unit is lightweight and easy to handle. Resists temperatures and all ordinary acid solutions.

**Description:** Made in two models, C-8 and C-9 with overall widths of 16 1/4" and 21-1/8". Handle length from floor is 48". Tube diameter is 1-1/8". Frame, handle and tube are all stainless steel.

Magnet will not attach itself to tank. It collects parts readily without actually touching them. Parts will jump one or two inches to the tube. Capacity of each model depends



Rotary magnet removes ferrous parts from tank

on size, weight and iron content of components. Magnets will hold small pieces, screws and nails. Wiper ring is replaceable and easy to install.

**Source:** Rotary tank magnets are manufactured by Eriez Mfg. Co., Dept. CP, Erie, Pa. . . or for more information check CP 8766 on handy form, pages 2 and 3.

### Catalog specifies variety of stainless steel products

Listed in 48-page catalog is manufacturer's line of stainless steel products. Specifications and prices are given for wide variety of articles ranging from set screws to multi-purpose pumps, all alphabetically indexed. Catalog is issued by Schnitzer Alloy Products Company, Dept. CP, 406 Pine St., Elizabeth 1, N. J. When inquiring specify CP 8767 on handy form, pages 2 and 3.

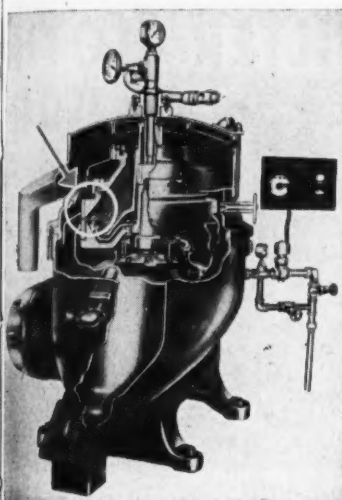
## PROCESSING EQUIPMENT

### Positive external control of valve-action is feature of centrifuge . . .

continuous-type unit combines high capacity and high separating efficiency

**Uses:** Continuous centrifuges, operating on batch principle, and furnished either as separators for separating two immiscible liquids and removing solids, or as clarifiers for removing solids from a liquid phase.

**Features:** External control of solids discharge and solids consistency. Employs stratification principle of high separating efficiency combined with high capacity. Develops centrifugal force equal to 6200 times force of gravity.



For clarification or separation

Both frequency and duration of valve-opening are precisely adjustable. Hence, the unit provides: 1) control over consistency of solids, 2) minimized loss of mother liquor with solids, and 3) greater scope of centrifugal application in the sense that flocculent suspensions, slimes and other trouble-

some solids can be efficiently handled by centrifuge.

**Description:** Ten externally-controlled solids-discharge valves are located radially around inside of the bowl. These are operated by admission of water, or other operating liquor, through a separate channel of the centrifuge. Although solids discharge is ordinarily controlled by external timers, it can also be operated by process control instrumentation.

Bowl, covers and other parts in contact with liquid being centrifuged are hot dipped, tinned steel or stainless steel. DV-2 controlled solids discharge centrifuge.

**Source:** The Sharples Corporation, Dept. CP, 2302 Westmoreland St., Philadelphia 40, Pa. . . . or for more information check CP 8768 on handy form, pages 2 and 3.

### Proportions, feeds, blends suspensions, liquids

Line of controlled-volume pumps feature liquid ends consisting of double-ball check design; ends are self-cleaning, will pass suspensions or such viscous material as tar. Stroking of pumps is effected by 4-way air valve that alternately admits and exhausts air from either end of the double-acting air cylinder. Pump uses include proportional feeding, developing hydraulic pressures to 20,000 psi, sampling industrial wastes, and blending and formulating.

Elements of construction and details of design, typical feed systems, accessories, dimensional specifications, and capacity data are included in sixteen-page Bulletin 450, issued by the Milton Roy Company, Dept. CP, 1300 Mermaid Lane, Chestnut Hill, Philadelphia 18, Pa. When inquiring specify CP 8769 on handy form, pages 2 and 3.






full finished tubing  
stainless steel pipe  
large diameter tubing  
ornamental tubing  
beverage tubing

# TRY

# TRENTWELD!

Whatever your tubing requirements . . . pressure tubing, stock line tubing, cooling coils . . . TRY TRENTWELD! Trent Tube Company specializes in the production of stainless and high alloy tubing. All mill facilities are designed to produce tubing that offers rugged dependability, long life and economical service. These features coupled with the many advantages of stainless steel tubing make TRENTWELD ideally suited for use in your application.

You're assured of quality because TRENTWELD is made in a tube mill by tube engineers. You're assured of proper application, because as tube specialists, Trent can show you how to apply TRENTWELD to your application . . . better! You're assured of finding what you need, because the complete TRENTWELD line ranges from 1/8" to 30" diameter inclusive. You're assured of prompt delivery, because Trent's mid-continent location makes every industrial area easily accessible by train, plane, boat or truck.

To meet your stainless or high alloy tubing requirements . . . TRY TRENTWELD! One word from you puts our experience at your call.

**TRENT TUBE COMPANY**  
Subsidiary of Crucible Steel Company of America  
General Offices and Plant: East Troy, Wisconsin  
Sales Offices in principal cities

## TRENTWELD

## STAINLESS STEEL TUBING

When inquiring check CP 8770 on handy form, pgs. 2-3

# AMIOCA

**100%  
AMYLOPECTIN  
STARCH**

**UNIQUE IN**

**PASTE AND FILM  
PROPERTIES**

**Clear  
Cohesive  
Non-jelling  
Non-skinning  
Highly Viscous  
Adhesive**

**ABILITY OF PASTES TO RECOVER  
ORIGINAL PROPERTIES AFTER FREEZING  
EASE OF CONVERSION BY  
AMYLOLYTIC ENZYMES  
REMOISTENING PROPERTIES  
OF ITS DRIED FILMS  
COMMERCIALY AVAILABLE  
IN LARGE QUANTITIES**

The unique properties of pure AMIOCA and its modifications — as successfully developed by National Starch Products — should be studied by the food, paper and textile fields. These properties should be compared with tapioca, potato and other tuber starches; and with natural gums such as arabic, tragacanth, karaya and other thickeners.

**DESCRIPTION:** AMIOCA is unique among starches because it consists entirely of amylopectin. It is generally believed to be a more or less branched or non-linear polymer of glucose. Its molecules, being highly hydrated and unable to readily associate, give rise to highly viscous, clear, cohesive pastes free from any tendency to thicken or jelly on ageing.

Other commercial starches such as corn, tapioca, wheat, potato, etc., contain two components — usually 20-30% amylose in addition to amylopectin. Amylose is believed to be a linear or straight chain polymer of glucose. In pastes, its molecules tend to associate with each other and with the amylopectin molecules. This tendency leads to thickening, jelling and increased opacity.

AMIOCA comes as a white powder or in pearl form resembling ordinary corn starch. It gelatinizes sharply, starting at 70°C and proceeding over a range of only 8°C. It has a peak hot viscosity of approximately 4,000 centipoises in 20 parts of water; and 15,000 centipoises in 10 parts of water. AMIOCA modifications range from materials which require from 20 or more parts of water to those requiring less than 1 part of water at a comparable viscosity.

**POSSIBLE APPLICATIONS:** AMIOCA and AMIOCA modifications offer *textile sizings* which are non-jelling with good adhesive and film forming properties and with excellent rinsability . . . *textile finishes* with clear, glossy films, and resistance to iron-browning . . . *grease-proof tub sizings* with non-jelling properties that permit high solids application . . . *paper beater sizings* that are non-jelling and permit a high degree of hydration . . . *paper coatings* with higher solids and greater binding power at a given viscosity . . . *foods* with modified jelling properties, clarity and freedom from cereal taste . . . *frozen foods* with ability to recover their original properties after defrosting . . . *drum dried or dehydrated foods* with better stability and clarity.

**WE'RE READY** to match our research and laboratory efforts with yours in further exploration of Amioca starch applications to your products. Address: National Starch Products, Research and Development Labs., 270 Madison Avenue, New York City. Plants: Dunellen, N. J., Chicago, Indianapolis and San Francisco.

**National**  
STARCH PRODUCTS

STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

When inquiring check CP 8771 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

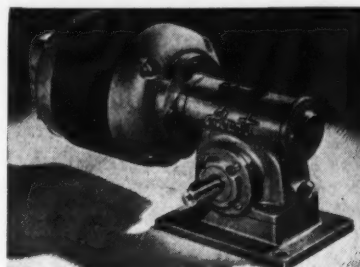
**Builds right-angle gearmotors  
for single, 3-phase  
operation . . .**

all models can be mounted in any position on single-surface bases

**Uses:** Line of right-angle drives includes types for applications requiring 1/6 to 5 hp, ratios from 5.8:1 to 100:1, and output speeds from 17.5 to 302 rpm.

**Features:** Types for single-phase and 3-phase operation.

**Description:** Gearmotors can be mounted in any position on their single-surface bases. Gear cases are semi-



Right-angle gearmotor

steel; gears are nickel bronze.

Worms are integral with alloy steel shafts (180,000 to 320,000 psi tensile strength). Bearings are ball type and neoprene-sealed. Insulation of motors is baked varnish.

Brakes are optional equipment. Gear-

motors with speeds other than those listed above can be built to specifications. Units for parallel output and right-angle vertical output are also available.

**Source:** Product of the Abart Gear & Machine Company, Dept. CP, 4828 W. 16th St., Chicago 50, Ill. . . . or for more information check CP 8772 on handy form, pages 2 and 3.

**Smother fires in liquid tanks  
with mechanically generated  
extinguishing foam . . .**

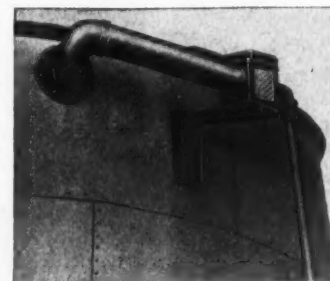
dispensers install on tanks; portable units apply foam to other free-burning materials

**Uses:** Extinguishes fires both in ordinary free-burning materials and in combustible liquids (Class A and B blazes). System provides constant, instantly operating protection for many types of liquid storage tanks. Fires in a variety of other areas may be extinguished with a portable unit.

**Features:** Foam moves rapidly over fire, extinguishing flames and preventing flashbacks which could start blaze burning again. Foam floats on surface of burning liquids without harm to petroleum products or other flammable products.

Should water temperature be close to freezing, fire smothering action is little impaired. Foam is produced equally well with either fresh or salt water. Only a relatively small quantity of the foam producing liquid is required to produce this extinguishing agent. Foam does not readily break down, but resists heat.

**Description:** Foam liquid is produced from treated protein of vegetable origin, together with additives which



Air foam unit on tank



**FEON Nylon**  
**FILTER CLOTH**  
**Saves \$9,000**  
**A YEAR**

A chemical manufacturer had been spending \$1600.00 every eight weeks on heavy cotton filter cloth from which he obtained less than one week's life. Now using FEON Nylon filter cloth he gets a life of eight weeks and has reduced costs to only \$200.00 for the same period—a saving of \$9,000 per year!

**FEON FITS Your FILTER**

FEON synthetic filter cloths are made by Filtration Fabrics Division to fit all makes of vacuum and pressure filtration equipment. Since FEON is stronger and more resistant to abrasion and mechanical abuse, a lighter cloth (usually more efficient than a heavier cloth) can often be selected.

**GET STARTED  
NOW**

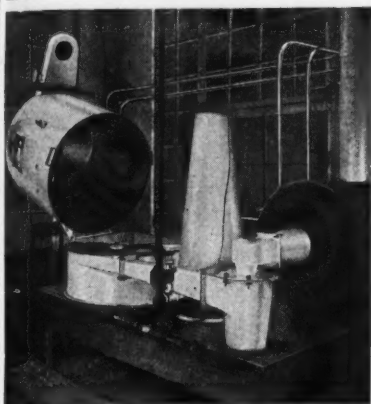
**FILTRATION FABRICS DIVISION**  
Filtration Engineers, Inc.  
155 Oraton St., Newark 4, N. J.

*We'd like more facts on  
FEON cloth for:*

Type of Filter . . . . .  
Size . . . . .  
Chemical Conditions . . . . .  
Temperature . . . . .  
NAME . . . . .  
TITLE . . . . .  
COMPANY . . . . .  
ADDRESS . . . . .

When inquiring check CP 8773  
on handy form, pgs. 2-3

## Three Exclusive Features Account for the POPULARITY OF BOWEN SPRAY DRYERS



Dryer Open for Cleaning

### 1. They are easy to clean

The chamber is hinged at the base for quick opening. The entire inside of the chamber can be easily reached for brushing out or washing. Duct work and collector are flanged and fastened with quick-opening wing nuts.

### 2. They are simple to operate

Made of stainless steel throughout where wet material or dry product contacts metal surface, the unit has been specially engineered for compactness and ease of operation.

### 3. They are actually miniature commercial spray dryers

The Bowen Laboratory Spray Dryer operates as a miniature of the Bowen commercial dryers. The same type of atomization is used. Because design and proportion of equipment parts are simply smaller in size, operation of the laboratory unit simulates full scale production technique.

Write for a list of companies who are using Bowen Laboratory Spray Dryers in your field.

**BOWEN ENGINEERING, INC.**

NORTH BRANCH 1  
NEW JERSEY

Recognized Leader in  
Spray Dryer Engineering  
... Since 1926



When inquiring check CP 8774  
on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

control viscosity, lower freezing point, improve foaming properties, and control bacteria.

Foam itself is mechanically generated by special equipment. Each system is engineered and installed to meet individual requirements. Solutions are mixed by either of two types of proportioners. One is the in-line proportioner for tanks not requiring extensive piping. The other, is the around-the-pump proportioner for use where long supply lines involve pressure losses. A trough-type unit for fixed systems and a portable generating nozzle are also available.

Six parts of foam liquid are mixed with 94 parts of water to form the foam solution. Addition of air to the solution forms the foam. About 170 gallons of fire-extinguishing foam is produced for each gallon of basic foam liquid.

Source: Foamite Airfoam and foam generating equipment are available from American-LaFrance-Foamite Corp., Dept. CP, Elmira, N. Y. . . . or for more information check CP 8775 on handy form, pages 2 and 3.

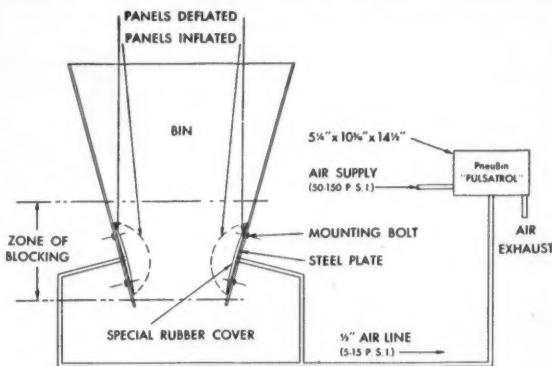
### Pulsating pneumatic panels keep stubborn materials feeding through bins . . .

automatically-regulated pulsations act directly on bin contents, displacing them without vibration

Uses: Pneumatic device to facilitate feeding stubborn materials through bins and hoppers, even though bin tops are closed. Applicable to all types of bins and hoppers.

To prevent arching, tunneling or funneling, assuring dependable flow of chemicals, minerals, soap products, pigments and dyes. For materials previously considered impossible to feed from bins.

Features: Air, automatically regulated, flows to and from flexible pulsating panels strategically mounted on



Applicable to all types of hoppers or bins

inside walls of bin or hopper. Material is thus kept moving by positive displacement which can be varied selectively as to pulsation frequency, force and amplitude.

Advantages include direct action on bin contents rather than bin, positive extrusions, ease of installation, quiet vibrationless operation and maximum economy.

Description: Flexible covers of pulsating panels are reinforced, highly abrasion-resistant Goodrich Armortite rubber. Air-flow is regulated by "Pulsatrol" unit. Pioneered by the late U. C. Tainton, the PneuBin principle was perfected by Gerotor May engineers in conjunction with technicians of B. F. Goodrich and Tainton companies.

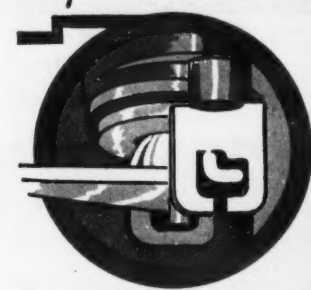
Source: Gerotor May Corporation, Dept. CP, Dept. E, Baltimore 3, Md. . . . or for more information check CP 8776 on handy form, pages 2 and 3.



## STEP-UP! DRAINAGE CAPACITY WITH Clark DUO-STEP Leverage STEAM TRAPS

Get the **DOUBLE-LIFT** that doubles steam trap efficiency!

Step 1 cracks the orifice



Step 2 opens orifice completely



● It pays to be curious about the efficiency of the steam traps you are using. Are you getting the value you can and should get in terms of drainage capacity? Or are you paying a premium for the capacity you require?

Clark DUO-STEP is a new idea. It actually gives Clark Steam Traps double the drainage capacity of old-fashioned traps of equal size. And that means double value!

Find out about DUO-STEP today—and save the difference!

**THE CLARK MANUFACTURING CO.**  
1848 East 38th St. • Cleveland 14, Ohio

Send for the story on Clark DUO-STEP Leverage today!



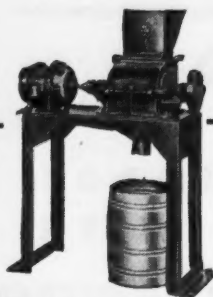
# Clark

When inquiring check CP 8777 on handy form, pgs. 2-3

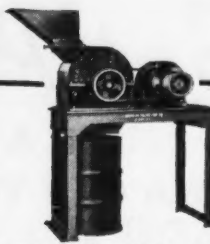
## FROM POUNDAGE to HIGH TONNAGE AMERICANS Offer . . .

### Precise Reduction

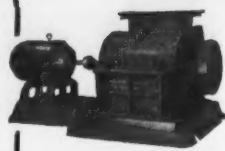
From small capacity laboratory mills to high tonnage mills you can count on Americans to give dependable uniform sizing, and long, economical service. Americans are custom-built to handle specific reduction jobs better—your assurance of high efficiency, low-cost operation.



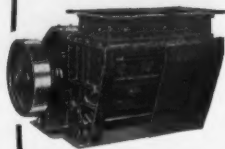
Laboratory Mill — or testing, pilot plant operation—and waste reduction.



"KC" Plastics Grinder — reduces thermoplastic sprues, rejects. Capacities to 450 lbs. per hour.



"24" Series—ring or hammer crushers. Capacities to 50 TPH.



"30" Series Hammermill Capacities to 100 TPH.



"AC" Ring Mill. With American's exclusive shredder rings — for high tonnage, uniform reduction. 500 TPH capacity.

Write for complete information on the American line of crushers.

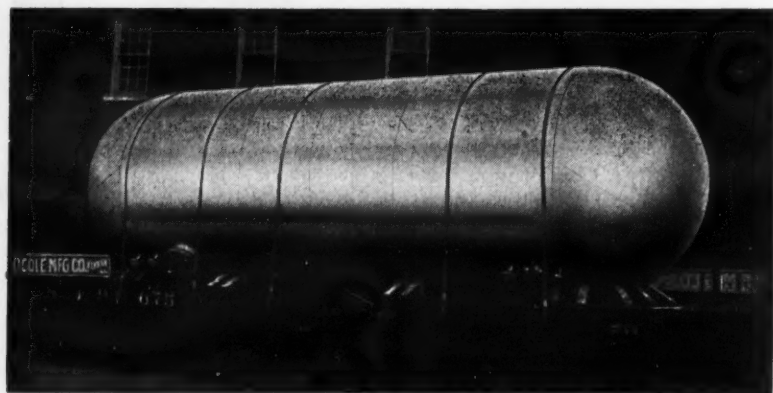
# American

## PULVERIZER COMPANY

Originators and Manufacturers of  
Ring Crushers and Pulverizers

1057 Macklind Ave.  
St. Louis 10, Mo.

When inquiring check CP 8778 on handy form, pgs. 2-3

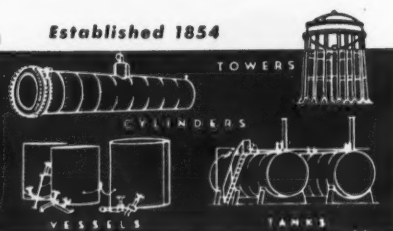


## COLE ALUMINUM TANKS

We have available stock sizes from 9,500 to 22,800 gallons for pressure storage, and tanks of 99.6% pure aluminum for hydrogen peroxide from 5000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.

**R.D. COLE**  
MANUFACTURING CO.  
NEWNAN, GA.

Established 1854



When inquiring check CP 8779 on handy form, pgs. 2-3

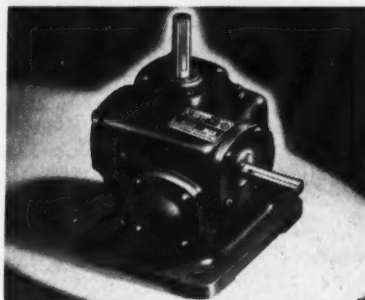
## PROCESSING EQUIPMENT

### Offers fractional hp speed reducers in 24 assemblies . . .

compact right-angle drive units are 1/20 to 1/8 hp

Uses: Totally-enclosed double-reduction speed reducers for fractional hp requirements in confined areas.

Choice of 24 different shaft locations for any application utilizing right-angle



Reduction ratios of 25:1 to 1764:1

drive. Can be coupled with a small centrifugal fan, for example.

Features: Provides a range of 1/20 to 1/8 hp, and reduction ratios of 25:1 to 1764:1, eliminating need to employ bulky reducers having hp ratings greater than required.

Makes thrifty use of power. Requires about half the space normally necessary.

Description: Single-piece, compact housing. Long-lived worm gear design. Timken bearings. Type DBRA speed reducers.

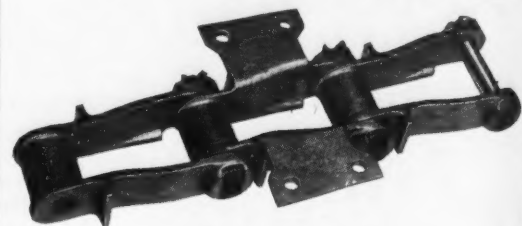
Source: Winfield H. Smith Corporation, Dept. CP, Springville, N. Y. . . . or for more information check CP 8780 on handy form, pages 2 & 3.

### Includes 90, 180° power-driven conveyor turns

Sectional steel belt conveyors and power turns of this manufacturer are built and shipped as complete units; can be installed by customer. Conveyor slats of standard models are zinc-plated steel; stainless steel slats are employed for sanitary requirements. Interesting feature of some models is knee space allotted to assembly line operators.

Power driven turns are offered in 90° and 180° styles. "Sermat Sectional Steel Belt Conveyors and Power Turns" presents illustrations and descriptions of construction, applications, and installations. Issued by the Sermat Division of Peterson Products Corp., Dept. CP, 1735 Armitage Ave., Chicago 22, Ill. When inquiring specify CP 8781 on handy form, pages 2 and 3.

## IN RECENT TESTS THIS CHAIN OUTLASTED MALLEABLE IRON CHAIN BY 20 TO 1!



Send us your problem. If, after investigation, our engineers cannot guarantee that Beaumont Beucalloy Elevator Chain,\* above, will save you money, we will not recommend its use.

\*A new Bulletin, 10-B, is available upon request.



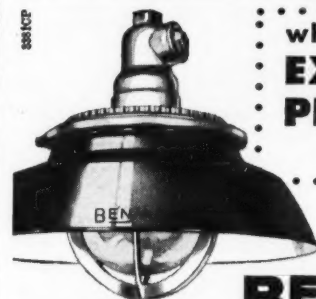
**Beaumont**

**BIRCH COMPANY**

1516 RACE STREET • PHILA. 2, PA.

DESIGNERS • MANUFACTURERS • ERECTORS • BULK MATERIAL HANDLING SYSTEMS

When inquiring check CP 8782 on handy form, pgs. 2-3



when  
**EXPLOSION-  
PROOF** lighting  
is required

...it pays  
to specify

**BENJAMIN**

If your fire insurance, building code or other safety regulation makes mandatory the use of Underwriters' Approved, Explosion-Proof Lighting Units, it will pay you to specify Benjamin Units.

### WIDE RANGE OF REFLECTORS

Because Benjamin Explosion-Proof Units\* are available in a wide range of reflectors, it is possible to specify the exact type required for the location and seeing task. This wide selection plus Benjamin Recommendations (furnished through your local electrical contractor) assure not only SAFE LIGHTING, but also lighting that will best meet the requirements of the SEEING TASK.

### GENUINE PORCELAIN ENAMEL

Reflectors are covered with fused-on "Life-Time" Porcelain Enamel—the indestructible diffusing reflecting surface. An auxiliary inner aluminum reflector provides additional lighting efficiency. Furthermore, Benjamin Explosion-Proof Units embody exclusive construction features which facilitate maintenance, reduce operating costs.

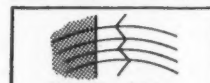
### FREE BULLETIN EP

gives complete specifications of Explosion-Proof Units. Write for your copy.

\*Meet National Electrical Code Requirements for Class I, Groups A, B, C and D hazardous locations. Benjamin Electric Mfg. Co., Dept. LL, Des Plaines, Ill.



**30 Severe Explosion Tests** in which spark plugs ignite explosive mixtures within the unit, demonstrate that Benjamin Explosion-Proof Units withstand hydrostatic pressures up to 380 pounds per square inch.



**Flame-Proof Joints** are close-fitting, deep-flanged and threaded to prevent escape of flames.

**BENJAMIN**  
**Explosion-Proof**

LIGHTING UNITS  
Distributed Exclusively Through  
Electrical Wholesalers

When inquiring check CP 8783 on handy form, pgs. 2-3

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

**Light touch of hand or foot operates pilot-controlled air-control valves . . .**

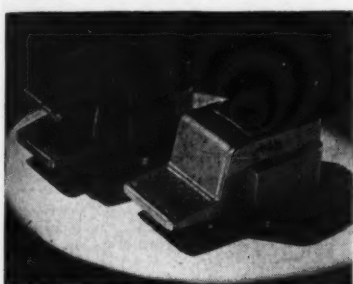
$\frac{1}{2}$  and  $\frac{3}{4}$ " sizes useful with air-line pressures of 25 to 150 psi; cite faster operating cycles

**Uses:** Hand or foot-operated air-control valves for use with air-line pressures of 25 to 150 psi.

Foot-operated models are for operating a double-acting air cylinder; hand-operated type supplies 4-way directional air control to operate single or double-acting pneumatic cylinder, other air-operated equipment, and can be operated by fingers, palm or knee.

**Features:** Light pressure operates either of these valves, although foot-operated model is built to withstand full weight of operator.

Moving less than  $\frac{3}{4}$ " for fast, easy valve action, the foot pedal operates a small pilot valve. Air-pressure replaces muscular effort to shift the main valve disc, compressed



Foot-operated air-controlled valve with and without pedal guard

air being alternately directed to 2 pressure ports to operate a double-acting air cylinder. Sliding, self-lapping main disc is shifted by a reciprocating light metal piston, which is moved by alternatingly admitting line-pressure at one

end and venting at the other. A safety-guard, which extends over foot pedal, is optional.

In the hand or knee-operated unit, depressing the control knob only  $\frac{3}{8}$ " operates the valve. Air-line pressure, acting through pilot-control connected to control-knob lever, moves the piston-operated main valve. Valve-action is almost instantaneous, permitting faster operating cycles.

For remote control, or to simplify piping connections, control-knob of hand-operated model can be located at end of an extended rod connected to operating lever. Valve, itself, can be mounted in any position that keeps the valve operating piston in a horizontal plane.

**Description:** Both foot-operated (NFS) and hand-operated (NHS) types are furnished in  $\frac{1}{2}$  and  $\frac{3}{4}$ " sizes.

**Source:** Hannifin Corporation, Dept. CP, 1150 S. Kilbourn Ave., Chicago 24, Ill. . . or for more information check CP 8784 on handy form, pages 2 and 3.

### Transmission of proportional pressure function of device

Pneumatic machine used as the metering element in the measurement and control of steam, gas and liquid flow, liquid level, pressure differential, and similar applications is described and illustrated in 4-page bulletin. Unit is designed to generate an output loading pressure which is directly proportional to a pressure differential impressed upon it. Machine operates at static pressures to 2500 psig, at minimum pressure differential of 4 psi, and at maximum pressure differential of 100 or 150 psi — depending on loading pressure range.

Bulletin 2150 is issued by The Hagan Corporation, Dept. CP, 323 Fourth Ave., Pittsburgh 30, Pa. When inquiring specify CP 8785 on handy form, pages 2 and 3.

JULY, 1950

*dependable. Heat that is  
economical-efficient-  
easy to use*

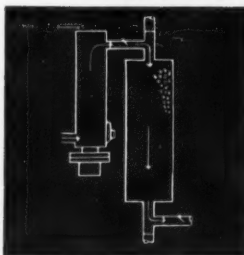
## CHROMALOX ELECTRIC Circulation Heaters

*for heating liquids  
preheating fuel oils  
heating compressed air  
and other gases*

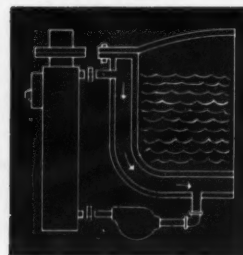
Production costs go down . . . operating efficiency goes up when you install economical CHROMALOX Circulation Heaters. They give you measured quantities of heat, at temperatures up to 750° F. that can be rapidly reached and accurately controlled. Dependable, around-the-clock operation, minimum maintenance.

Uses include: Water heating applications such as steam boilers and accumulators; jacketed chemical kettles, tanks and processing equipment. Preheating fuel oils; heating Dowtherm, Aroclor, Prestone or heat transfer oils. Heating nitrogen, air and other gases, drying steam, plastic powders and other process work.

HERE ARE TWO TYPICAL APPLICATIONS



Heating Nitrogen to Reactivate Alumina



Heating Oil-Jacketed Kettle

## CHROMALOX

*Electric Heat for Modern Industry*

When inquiring check CP 8786 on handy form, pgs. 2-3

### check these advantages of CHROMALOX Electric Heaters

1. Efficient heat when and where you need it.
2. Economical initial cost; low installation and operating costs.
3. Accurate temperature control — thermostatically or manually regulated.
4. Wide selection to meet your specific heat requirements.
5. Improved process, production and product with fewer rejects.

for more information  
*Write for Catalog 50*

It has complete data on many of the 15,000 Chromalox Electric Heaters and Equipment used in modern industry.

EDWIN L. WIEGAND COMPANY  
7517 Thomas Boulevard  
Pittsburgh 8, Pa.  
Please send Catalog 50

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_  
State \_\_\_\_\_

IC-47

## NEW! STAINLESS STEEL BODY

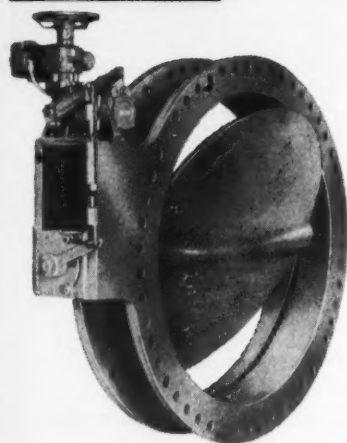
makes a good steam trap better  
... at no increase in cost to you.  
Means reduced maintenance for  
the trap that gets equipment  
hotter, sooner and keeps it hot!  
Over 600,000 Yarways already  
installed! Sold by  
distributors through-  
out the world.



**YARNALL-WARING CO.** 125 Mermaid Ave., Phila. 18, Pa.

When inquiring check CP 8787 on handy form, pgs. 2-3

Get  
**Automatic  
CONTROL  
and SHUT-OFF**  
of Air-Gases  
Liquids • Solids



60" butterfly valve with motor operator  
and remote control, and auxiliary hand  
wheel control.

## ROCKWELL BUTTERFLY VALVES

**Boost Operating Efficiency**

To meet the growing demand for auto-  
matic valves for control and quick shut-off  
of air, gas, liquids and semi-solids, Rockwell  
Butterfly Valves are available in sizes from  
1" to 84" pipe size, with construction to  
withstand almost any chemical or physical  
action or temperature.

These valves may be equipped with such  
mechanisms as electric motor; Limitorque  
control with push button stations and indi-  
cating lights to show full open and full  
closed position of the valve blade; air dia-  
phragm operator; solenoid operator; hy-  
draulic or pneumatic cylinder, with or  
without limit switch, etc. Auxiliary hand  
wheel or lever controls can be applied for  
emergency manual operation.

Boost the efficiency of your plant or  
equipment with Rockwell Valves. Ask for  
our catalog.

**W. S. ROCKWELL CO.**  
220 Eliot St., Fairfield, Conn.

When inquiring check CP 8788 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

**Control nozzle's spray  
cycle with compressed  
air line valve . . .**

compact nozzles handle all liq-  
uids; diameter is only 1½"

**Uses:** Designed to provide an in-  
termittent spray. Typical application  
is supplying lubricant to molds of  
presses — the spraying operation being  
timed with the cycle of the press  
stroke. Nozzles will handle all types  
of liquids.

**Features:** By using either a manu-  
ally or mechanically operated air valve  
in line, operating period of nozzle  
can be timed to meet any require-  
ment.

**Description:** Nozzles are small,



Nozzle operates by air or gas

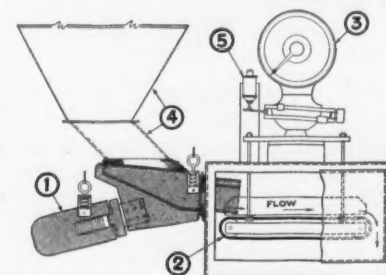
compact; diameter is 1½". Available  
in a variety of materials such as brass,  
stainless steel, and monel metal. Sup-  
plied in a selection of air and fluid  
nozzle set-ups to produce a round  
spray, multiple round spray, or flat  
spray. Made for siphon type or pres-  
sure type operation. Designed for use  
with gases as well as compressed air.

**Source:** JAU automatic pneumatic  
nozzles are made by Spraying Systems  
Co., Dept. CP, Bellwood, Ill. . . . or  
for more information check CP 8789  
on handy form, pages 2 and 3.

**Flotation booklet has  
wealth of useful info**

General discussion of flotation and  
application of flotation agents  
(frothers, collectors, and modifiers)  
is presented in 16-page booklet. In-  
cludes 10 pages of mathematical  
formulas useful in the operation and  
control of modern ore-dressing mills.  
"Flotation and Hercules Flotation  
Agents" is issued by the Hercules  
Powder Company, Dept. CP, Wil-  
mington, Del. When inquiring  
specify CP 8790 on handy form,  
pages 2 and 3.

## For Really Accurate Constant Weigh Feeding!



1. Vibratory Feeder
2. Scale - sus-  
pended - con-  
stant - speed  
belt conveyor
3. Weighing Scale
4. Supply Hopper  
and Chute
5. Automatic Electric  
Control of Feeder's Flow

The Always Dependable

## SYNTRON GRAVIMETRIC FEEDERS

— with their purely "ELECTRONIC" instantaneous correction  
of even the slightest variation in weight in the flow of bulk  
material, offer accuracies far beyond those possible with me-  
chanically controlled equipment.  
Small sizes for weigh feeding chemical reagents — up to huge  
models for hundreds of tons per hour of ore, coal, limestone,  
etc.

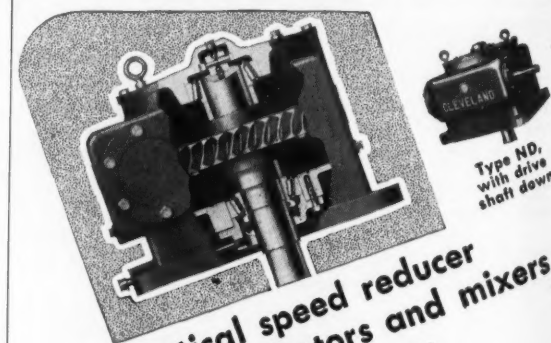
Write for new brochure on  
Weigh Feeding "Electronically"

**SYNTRON CO.**

110 Lexington

Homer City, Pa.

When inquiring check CP 8791 on handy form, pgs. 2-3



Type ND,  
with drive  
shaft down

**A new vertical speed reducer  
to drive agitators and mixers**

**IMPROVED** worm gear drive—in seven  
sizes each of two types—ready for prompt  
delivery. Designed especially for agitators  
and mixers, and for use with overhead  
chain conveyors, as well.  
**WRITE** for a copy of the new Cleveland  
Bulletin No. 125, describing types NU  
and ND, with capacity charts and dimen-  
sion data. The Cleveland Worm & Gear  
Co., 3257 East 80th St., Cleveland 4, Ohio.

**CLEVELAND**  
Worm Gear  
Speed Reducers

When inquiring check CP 8792 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

**Belt moves hot foundry sand for 14 months; still good for further service . . .**

carcass of multiple plies of glass fabric is covered with heat resistant rubber

**Uses:** Designed for conveying hot materials, such as foundry sands.

**Features:** Heat resisting qualities make it possible to extend belt life, avoiding early replacement usually caused by burnout of conventional belts.

Temperatures as high as 400° are withstood by this belt.

**Description:** Carcass is constructed with multiple plies of glass fabric. Covers are made of rubber compounded to resist heat. Glass is not affected in a heat range as high as 400° F. In an installation in a large foundry, belt is still in service after 14 months continuous use. Previously, 10 weeks service had been considered good performance in this operation.

Available in any width and ply required for particular jobs.

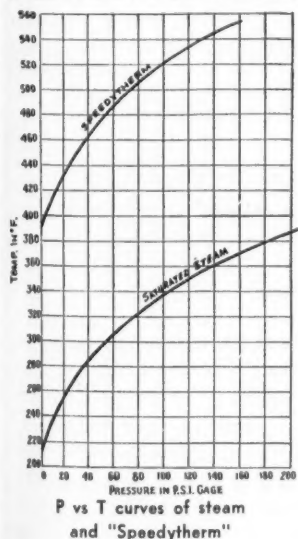
**Source:** Rubber-glass conveyor belts for hot materials are made by Republic Rubber Div. (Lee Tire & Rubber Corp.), Dept. CP, Youngstown, Ohio . . . or for more information check CP 8793 on handy form, pages 2 & 3.

**Vaporized heating medium provides temp of 465° F at 40 psi . . .**

special liquid used in place of water in electrode type boiler; units are simple, safe, efficient

**Uses:** Especially suitable for platens, molds, jacketed kettles and autoclaves, where working pressures must be limited and where desired temperatures are in range of 400-500° F.

**Features:** Units use a special liquid called Speedytherm. It can be delivered and circulated through ordinary piping and its boiling point is much higher than water. Its vapor temperature at any given pressure is above that of saturated steam. At 40 psi, for example, saturated steam has a temperature of 287° F. Speedytherm vapor temperature at the same pressure is 465° F. Like saturated steam, it will condense as it gives up its latent heat.



**Description:** As in other generating units built by this organization, no coils or open flame are involved. Heat is generated by resistance of liquid to flow of current between solid metal

electrodes. If there is no liquid in the boiler, no current flows and power input stops.

**Source:** Speedytherm boiler is built by Livingstone Engineering Co., Dept. CP, 100 Grove St., Worcester 5, Mass. . . . or for more information check CP 8794 on handy form, pages 2 and 3.

JULY, 1950



# Achieves the long-sought V-BELT DRIVE for LOOMS

## For Cotton Mills and Rayon Mills

Loom operators had long wanted a V-Belt Drive for their looms. But—

## Stubborn Difficulties

—stood in the way. Gates over-came these difficulties through SPECIALIZED research in the world's largest V-Belt testing laboratories, thus providing—

## Another Accomplishment For Industry

by Gates SPECIALIZED Research

**T**HE extremely small diameter of pulleys over which loom drive V-Belts must flex under severe shock-loads posed a problem in V-Belt construction that seemed *insurmountable*.

But, with war-born synthetic fibers of unusual strength; and with man-made rubbers possessing engineering properties never available before—and with the great research and testing facilities available at Gates—a V-Belt was achieved that met the rigorous conditions of loom drive operation.

Then, a clutch of very advanced design was wanted—a clutch that would do *more*, with *less* mainte-

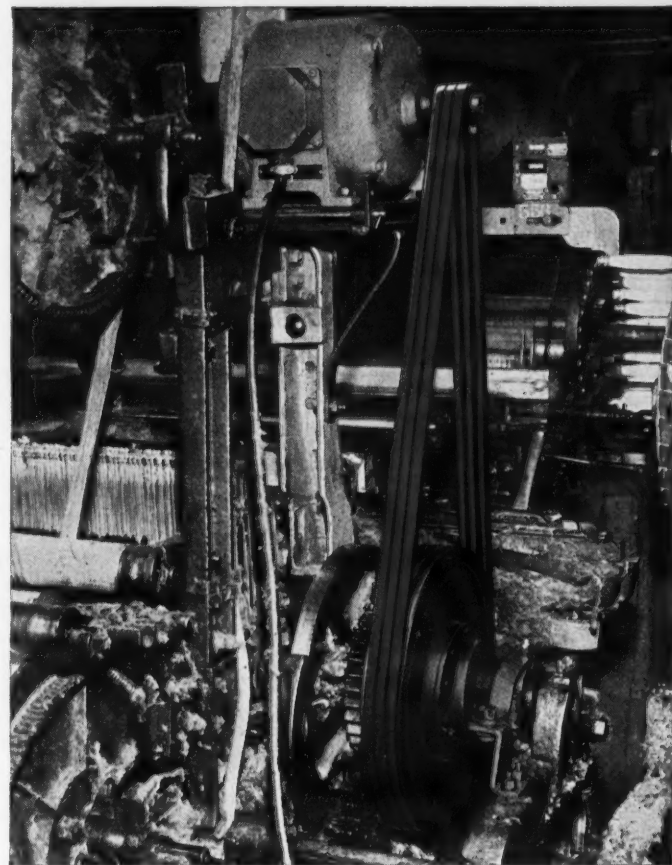
nance, and *fewer* troublesome adjustments than the clutches commonly used with gear and pinion drives on looms.

Gates therefore engineered a clutch that is a marked improvement over the clutches previously available for looms.

Finally—and this was most important, too—the entire drive assembly had to be so designed that it would go on the loom without any

costly re-arrangement of existing mill equipment. This rather demanding job of design was also accomplished.

Today, the Gates V-Belt Drive for looms is cutting operating costs—and giving bigger loom output with better quality of cloth—in Cotton Mills and Rayon Mills the country over—another accomplishment of Gates SPECIALIZED Research!



ENG-505

**THE GATES RUBBER COMPANY**  
The World's Largest Makers of V-Belts  
DENVER, U.S.A.

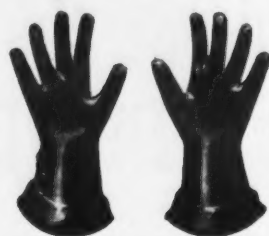
**GATES VULCO ROPE DRIVES**  
Engineering Offices and Jobber Stocks IN ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries.

When inquiring check CP 8795 on handy form, pgs. 2-3

# 10 TIMES HIGHER ABRASION RESISTANCE

(standard abrasive wheel test)

**SURETY**  
SURESEAL  
SYNTHETIC RUBBER  
Industrial gloves



**PLUS**

Sureseal Synthetic's higher snag and chemical resistance means safer, longer-wearing gloves—much lower glove costs.

Standard tests show that Sureseal Gloves are miles ahead on all counts—besides higher abrasion resistance, Sureseal Synthetic Rubber has 4 times higher snag resistance, much higher chemical resistance, than either natural rubber or standard synthetics.

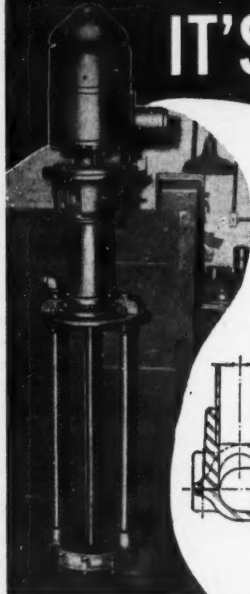
Get more hand protection for less money in your plant—ask your distributor about Surety Sureseal Gloves, or write direct.

THE  
**SURETY** DEPT. C  
RUBBER CO.  
CARROLLTON, OHIO

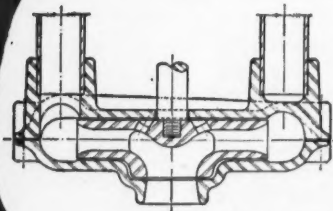
In Canada: SAFETY SUPPLY  
COMPANY, Toronto, Ontario

When inquiring check CP 8796 on handy form, pgs. 2-3

## THIS PUMP WON'T KEEP IT'S *Big Mouth* SHUT!



For thick slurries, corrosive or toxic chemicals and hot liquids—it's the Nagle Type SW-OB Vertical Shaft Pump. No stuffing box, no submerged bearings, no mess. Generous bottom entrance. The 1½" Type SW-OB shown, made of corrosive resistant alloys, is giving excellent service at a large chemical plant. Catalog 4906 describes Nagle Horizontal Shaft, Vertical Shaft and Self-Priming Pumps.



Various impellers are available, depending upon nature of mixtures to be pumped. Pump shown is fitted with Class "D" funnel mouth impeller.

Qualified Representatives Everywhere

**Nagle Pumps**  
INDUSTRIAL PUMPS FOR ABUSIVE APPLICATION  
1247 Center Ave., Chicago Heights, Ill.

When inquiring check CP 8797 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

**Lab-quality magnifications now possible in field . . .**

microscope's wide field of vision is entirely in focus

**Uses:** Pocket-sized microscope for field and shop work. For any magnification between 20x and 60x.

**Features:** Offers laboratory-quality magnifications, maker reports. Optic system gives a wide field of vision which is entirely in focus. Prismatic aberration is eliminated.



Pocket microscope has a wide field of vision

**Description:** All parts of Model No. 233 microscope are either brass or plated steel. Instrument is offered in a leather case.

**Source:** Product of the Clarkstan Corporation, Dept. CP, 11927 West Pico Blvd., Los Angeles 64, Calif. . . . or for more information check CP 8798 on handy form, pages 2 and 3.

### Has 5 functions in conditioning air

Functions which air conditioning equipment perform are 1) cooling warm air, 2) dehumidifying wet air, 3) filtering dirty air, 4) circulating conditioned air, and 5) bringing in fresh outside air. Three such units (2, 3, and 5 hp) are for exposed use in offices, shops, etc. Two units (7-1/2 and 10 hp) are for installation outside the air-conditioned area. Operation and construction features, and dimensional specifications are set forth in 12-page, 2-color illustrated Catalog PM79-0100, issued by the General Electric Company, Dept. CP, Bloomfield, N. J. When inquiring specify CP 8799 on handy form, pages 2 and 3.

## How 3 plants have CONTROLLED CORROSION

by applying systems of

**TOUGH, CHEMICAL-RESISTING COATINGS**



**1. LARGE NORTH CENTRAL PRODUCER OF CHEMICALS** has used Ucilon Coatings extensively on structural work and equipment. Applied to interiors of brine tanks, Ucilon Coating System is still in excellent condition after more than 5 years.

**2. IN WELL KNOWN CORN PRODUCTS REFINERY**, the Ucilon Coating System used was in tip-top condition after a year on alloyed steel tanks, which, when left unprotected, had been badly etched in weeks—despite the special steel.

**3. IN TEXTILE PROCESSING PLANT**, Ucilon Coating System was applied to dye-house salt machine. Two years later, the protective system was still intact. Maintenance man reported Ucilon Coatings were the only ones that were successful, others being broken down within weeks by the wet salt.

You'll find many Ucilon Coating Systems ready to give service-proved protection against this broad group of chemicals: Acids, alkalis, salt solutions, petroleum and its derivatives, water, oxidants. Coating systems have been engineered for conditions which include fumes, splashing or continuous contact with these agents. Comprising these systems are tough vinyl, phenolic, fish-oil, chlorinated rubber or other coatings, and special wash primers, primers and intercoats where required.

Learn how you can get better protection and savings in painting costs with Ucilon Coatings. Write—outlining your problem. We'll send details on the recommended coating System.

## UCILON Protective Coatings

One Group of the Many **UNICROM** COATINGS FOR METALS

UNITED CHROMIUM, INCORPORATED 100 East 42nd Street, New York 17, N.Y.  
Detroit 20, Mich. - Waterbury 90, Conn. - Chicago 4, Ill. - Los Angeles 13, Cal.

When inquiring check CP 8800 on handy form, pgs. 2-3

## BRIEFS...

from contemporary  
publications

READ THEM . . . IN THIS ISSUE

You get a "quick look" at the most valuable articles being published in this field, and kindred fields . . . by reading the "BRIEFS" section of **CHEMICAL PROCESSING** every month.

Our Editors read more than 50 contemporary publications every month . . . select those articles they believe you will want to know about . . . and, in terse style, they tell you about them. Name of publication and issue are given so you can read those you want to know more about.

It's a monthly service . . . to save you time . . . yet keep you informed. See "BRIEFS" in this issue, page 74.

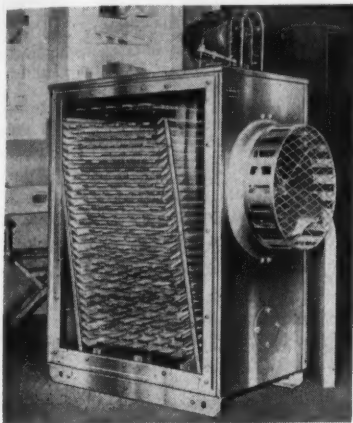
## PROCESSING EQUIPMENT

### Adds improvements and 20-ton size to his cooling towers . . .

now includes rubber lining and slower speed fans on all sizes

**Uses:** Cooling towers for water.

**Features:** Complete units, ready to operate. Manufactured in 8 sizes and in 2 styles (small and large). Interiors of all towers are made impervious to corrosion by lining with rubber. Slower speed fans promote quiet operation.



One of 8 sizes of cooling towers

**Description:** The 1950 line of Aquatowers — still retaining their predecessor's open distribution basin, redwood filling from top to bottom, totally enclosed motors, and complete basin fixtures — has an additional size and

improvements on all sizes. Twenty-ton size is new; all units have rubber lining and slower speed fans.

Sizes range from 3 to 50 tons of refrigeration (based on 250 Btu per min per ton dissipated by tower). Further information is presented in manufacturer's Bulletin AQ-50.

**Source:** The Marley Company, Inc., Dept. CP, Kansas City 15, Kansas . . . or for more information check CP 8801 on handy form, pages 2 and 3.

### Selenium rectifier is lighter with plates of duraluminum

arrangement of stacks in various circuits provides for specific power requirements

**Uses:** Metallic, dry plate rectifiers convert alternating current to direct current of specified voltage.

**Features:** Size and weight for given power output are small due to use of duraluminum base plates. Uniform selenium film on plates permits high current capacity and good voltage regulation.

**Description:** Rectifiers consist of duraluminum base plates covered in high vacuum by a vaporization process with a uniform layer of selenium. Rectifiers are available as individual plates or as completely assembled stacks with specified voltage rating. Stacks are arranged in various circuits depending on dc voltage requirements and ac supply voltage. Most frequently encountered circuits are: single-phase, half wave; single-phase, full wave, center tap; single-phase, full wave bridge; three-phase, half wave; three-phase, full wave bridge; and three-phase, center tap.

Fourteen plate sizes are available between 1 x 1" and 6 x 12", for which output ranges from 0.15 to 40.3 amps dc. Special plate sizes can be made up to 12 x 52".

**Source:** Syntron Company, Dept. CP, 110 Lexington Avenue, Homer City, Pa. . . . or for more information check CP 8802 on handy form, pages 2 and 3.



**MORE  
RESISTANT  
TO MORE  
CHEMICALS**

**ACE**

**HARD RUBBER  
AND PLASTICS**

## HOT CORROSIVE SALTS almost too hot to handle

**F**OUR TIMES A DAY, metallic salts in hydrochloric and hydrofluoric acid solutions are heated to a near boil and cooled to room temperature, in these digesters and crystallizing tanks. The hot acids are extremely corrosive, and the constant change of temperature is rough on the tanks. Most materials would not stand up or would be too expensive.

Best answer was found in ACE hard rubber linings—the two-layer protection that is both chemically strong, and mechanically tough. Approximately 40 ACE rubber-lined tanks are now in service in this plant. Many have been on the job for eight years.

The fume ducts in the background, incidentally, handle hydrofluoric acid vapors. They, too, are ACE protected.

ACE hard rubber resists all alkalis, metallic salts, inorganic acids, hydrochloric acid any strength, nitric acid to 16° Be, sulphuric acid to 50° Be, phosphoric acid to 75%, and countless other corrosives. Other ACE plastics extend this range still further. Ask for catalogs of ACE-Clad and ACE-molded chemical equipment.



**AMERICAN  
HARD RUBBER  
COMPANY**

11 MERCER ST. • NEW YORK 13, N. Y.

When inquiring check CP 8803 on handy form, pgs. 2-3

# Fast, easy BOLT THREADING

## Announcing Handy New RIGID Bolt Dies



"Good idea—this carrier for bolt die sets—makes 'em hard to lose."



No. OOR-B—  
1/4" to 1"  
National  
Coarse and  
Fine Thread.

● You're ready to thread bolts fast with these new **RIGID** Bolt Dies. Dies easily reversed for threading close to bolt head. No adjustment needed for standard threads—adjust easily for undersize and oversize threads. Special steel dies, precision cut for long service. If you have a **RIGID** OOR, buy bolt die heads alone, they fit OOR drive ring . . . an extra economy. Buy this new **RIGID** at your Supply House.



New **RIGID** 3-Way Bolt Die No. 33-B—Handy tool for 1/8", 1/4", 3/8".

**RIGID**  
WORK-SAVER PIPE TOOLS  
THE RIDGE TOOL CO. • ELYRIA, OHIO

When inquiring check CP 8804 on handy form, pgs. 2-3

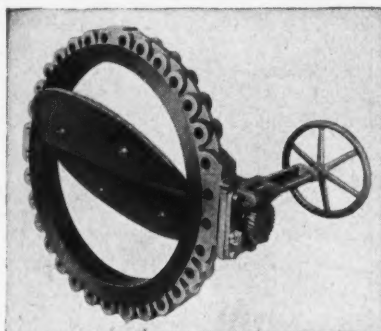
## PROCESSING EQUIPMENT

**Control liquids, steam, gas  
with torque resisting  
shut-off valve . . .**

low pressure drop and resultant savings in pumping power; turbulence eliminated

**Uses:** For air, gas, liquids, steam and semi-solids in the shut-off and regulation of volume and pressure; pressure relief; control of liquid level, back pressure, water hammer, steam hammer, constant differential pressure; regulation of pump, fan, engine and turbine output; and control of automatic combustion.

**Features:** Only a few handwheel turns are needed for opening and closing. In the open position, the beveled streamlined vanes create a Venturi action. Pressure drop, compared with many other valves, is low and therefore substantial savings are shown in pumping power. There are no pockets to capture sediment, no change of flow direction to create turbulence. Freedom from turbulence reduces erosion and cavitation. More control rangeability is provided, and valve is readily adapted to automatic operation.



Heavy-duty wafer type valve

Body assemblies are correctly engineered both mechanically and metallurgically. ASA standards are complied with.

**Description:** Heavy duty wafer type valve equipped with handwheel control; self-locking worm and gear.

One-piece body casting. Operates on the principle that face-to-face dimension does not reduce torque. Vane, shaft assembly, handwheel control with self-locking worm and gear; flareout on body casting accommodates large mounting bracket which is identical with maker's double flanged valve.

**Source:** Valve type No. 771 is built by R-S Products Corp., Dept. CP, Wayne Junction, Philadelphia 44, Pa. . . or for more information check CP 8805 on handy form, pages 2 and 3.

**Quick change, slip-on media  
for air filters is easy  
to clean, replace . . .**

serviceable in areas where heavy dirt, greasy soot are present; non-sagging construction

**Uses:** Designed for heavy-duty installations in ventilating and air-conditioning systems. Great flexibility makes it suitable for wide range of other applications.

**Features:** Larger filtering area, size for size, than most other types of panels. Constructed so that both sides of filtering medium are protected by wire cloth. This prevents sagging and permits cleaning of the most fragile media without damage.

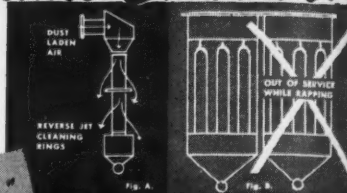
It is built so that it may be easily vacuum cleaned. A mechanical loading machine is available for quick, easy loading of replacement media.

**Description:** Model WKE 8 filter is 24 x 24 x 8" deep and provides an active filtering area of 28 sq ft,

# Eliminate Shutdowns

FOR  
DUST  
FILTER  
CLEANING!

DAY  
"Autoclean"  
DUST FILTER



NEVER A SECTION  
OUT OF SERVICE!

Fig. A shows how slow traveling reverse jet cleaning rings blow high pressure air back through the felt tubes in the DAY "Autoclean" Dust Filter with a maximum cloth area loss of only 1 1/4%. This provides continuous-automatic operation and eliminates cleaning shutdowns which in most other type filters may amount to 50% of cloth area (Fig. B).

**Other Advantages of the  
DAY "Autoclean" Dust Filter:**

- CONSTANT AIR VOLUME
- HIGH AIR TO CLOTH RATIOS
- HIGH CLEANING EFFICIENCY
- PARALLEL AIR FLOW

Licensed by H. J. Hersey, Jr.

Write for  
new Bulletin  
**The DAY Company**  
852 3rd Avenue, N. E., Minneapolis 13, Minn.  
IN CANADA: Box 70, Fort William, Ontario  
Branch Plants in Ft. Worth, Buffalo and Waukegan, Illinois

When inquiring check CP 8806 on handy form, pgs. 2-3

for GREATEST DEPENDABILITY and EFFICIENCY  
in metered pressure pumping of  
**SULPHURIC ACID**  
... at all concentrations

Pumps against line pressure . . . meters accurately . . . has no stuffing box, so eliminates leakage, prevents corrosion of pump or contamination of product, avoids loss of prime . . . lowest maintenance . . . Hundreds of satisfactory installations.

- NO STUFFING BOX OR RUNNING SEAL
- POSITIVE DISPLACEMENT PISTON MEASUREMENT
- FLOW RATE ADJUSTABLE WHILE IN OPERATION
- MANUAL OR AUTOMATIC CONTROL

**Lapp**  
**PULSAFEEDER**

PISTON DIAPHRAGM, CHEMICAL PROPORTIONING PUMP

WRITE for Bulletin 262 with complete description and specifications.  
LAPP INSULATOR CO., INC., PROCESS EQUIPMENT DIVISION, 313 MAPLE STREET, LE ROY, N.Y.

When inquiring check CP 8806A on handy form, pgs. 2-3

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

giving a maximum filtering area in any given space. Media most generally used is Feltex paper, either 6 or 10 ply. Other media are available for special conditions. Units are highly flame-resistant with B-G medium, Fire Underwriters Class I approval.

Cell is ruggedly built of 16-gauge steel and 4 x 4 mesh galvanized wire.

Lifting handles and cam type locking latches are supplied as standard equipment on this model. In addition to the mechanical loader a manual loader is offered for small installations.

Construction embodies use of a permanently mounted, hot galvanized steel screen which has been fitted to the cell in the box portion of the filter to form a series of fins so designed that they provide a maximum filtering area in any given space of low resistance. Against this screen cloth, on the air-entering side of the filter, is fitted a pre-formed filtering element. This in turn, is backed up by another screen of lesser gauge.

**Source:** Model WKE 8 and other units in this series are built by Dollinger Corp., Dept. CP, 11 Centre Park, Rochester 3, N. Y. . . . or for more information check CP 8807 on handy form, pages 2 and 3.

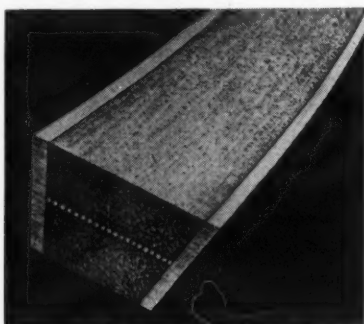
### Stretch-resistant V-belt can be spliced endless upon sheaves . . .

saves time where outboard bearings are involved; fits single and multiple belt drives

**Uses:** V-belt spliced directly in place on sheaves of single and multiple belt drives.

**Features:** High resistance to stretch is due to built-in "tension-guard" which consists of a row of rayon cords bonded between the leather plies. Ability to be spliced endless on drive saves time where outboard bearings are involved.

**Description:** Furnished in rolls or endless belts, it is cut to fit drive and spliced endless on sheaves, using a scarf joint and manufacturer's Duxbak water-proof cement. This cement automatically picks up and bonds the severed ends of rayon cords, making them endless. Mechanical fasteners may also be used for joining belt-ends.



"Tension-guard" V-belt

Two simple tools are used in splicing and cementing: the Schieren E-Z lap cutter and a lap press. Lap cutter cuts belt on bias, making long, tapering, slant-wise cut and producing a feather edge on the ends. This edge is important in assuring a smooth-running endless belt joint. Belt cement is then applied, and the belt placed in the lap press. When installing belts directly in grooves, a tension rod and clamp are added to each end of the press clamp. This permits installing the belt under any desired tension without dismantling the drive.

**Source:** Chas. A. Schieren Company, Dept. CP, 29 Ferry St., New York 7, N. Y. . . . or for more information check CP 8808 on handy form, pages 2 and 3.

## These Brick Have Quick Temperature "Reflexes"

Low heat storage and conductivity! That's the reason B&W Insulating Firebrick heat or cool fast. This quick temperature reflex provides precision control in chemical and petroleum furnaces. Processes can be started — or stopped — quickly. Also important — when furnaces are shut down, there is no long delay before they can be entered for inspection.

Views of Alcorn Combustion Co. crude heater for Continental Oil Co., Ponca City, Oklahoma.



See how these economies add up in your plant. Talk to your B&W Representative. He'll gladly give you facts and figures on money-saving B&W Refractories.

R-380

B&W REFRACTORIES PRODUCTS — B&W 80 Firebrick • B&W Junior Firebrick • B&W 80 Glass Tank Blocks • B&W Insulating Firebrick  
B&W Refractory Castables, Plastics and Mortars • OTHER B&W PRODUCTS — Stationary & Marine Boilers and Component Equipment...  
Chemical Recovery Units . . . Seamless & Welded Tubes . . . Pulverizers . . . Fuel Burning Equipment . . . Pressure Vessels . . . Alloy Castings



## SAVE MONEY 3 Other Ways, Too

### LOW INSTALLATION COSTS

B&W Insulating Firebrick are light, simple to install. They can be cut, drilled or shaped on the job with ordinary woodworking tools.

### NO EXPENSIVE ALLOYS

These high-insulating brick can be supported by ordinary carbon steel hangers . . . don't require expensive, heat-resisting alloys.

### STAYING POWER

B&W Insulating Firebrick withstand severe service for years . . . keep maintenance costs to a minimum.

# BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.  
REFRACTORIES DIVISION  
GENERAL OFFICES: 85 LIBERTY ST., NEW YORK & N.Y.  
WORKS: AUGUSTA, GA.



When inquiring check CP 8809 on handy form, pgs. 2-3



**A NEW MATERIAL  
FOR HANDLING  
CORROSIVE CHEMICALS**

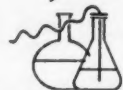
*Available in Rod, Tube or Sheet Form*

Impervious to almost all acids . . . this new material is odorless, tasteless and non-toxic. It will not cloud or break down in the presence of corrosive chemicals . . . and has many properties which can not be matched by any other material. Ask for further details on your letterhead.

**Chemical  
Resistance**

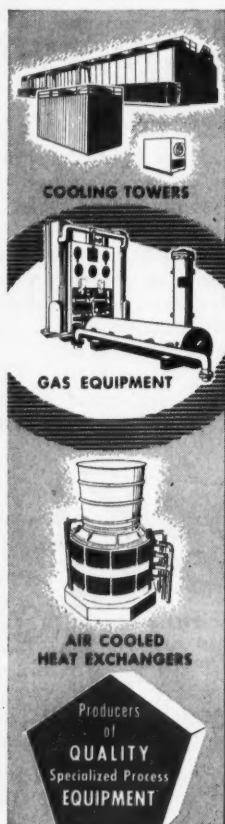
SOLUTION	% CHANGE		SOLUTION	% CHANGE	
	dimensional	weight		dimensional	weight
30% H <sub>2</sub> SO <sub>4</sub>	none	.062	toluene	none	.018
3% H <sub>2</sub> SO <sub>4</sub>	"	.091	heptane	"	.016
10% NaOH	"	.086	10% NaCl	"	.082
1% NaOH	"	0.10	distilled H <sub>2</sub> O	"	0.10
95% ethanol	"	.053	10% HNO <sub>3</sub>	"	0.10
50% ethanol	"	.085	10% HCl	"	.099
acetone	2.1	1.0	5% acetic acid	"	0.13
ethyl acetate	0.35	.45	oleic acid	"	.078
ethylene dichloride	1.5	2.5	10% NH <sub>4</sub> OH	"	0.25
CCl <sub>4</sub>	none	.022	2% Na <sub>2</sub> CO <sub>3</sub>	"	0.11
Conc. HCl		0.067	3% H <sub>2</sub> O <sub>2</sub>	"	0.11

Test Method 7011, Federal Specification LP-406A.

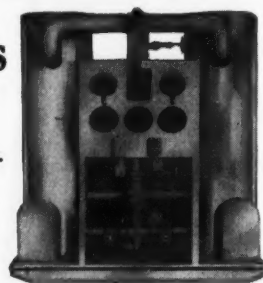


**houghton laboratories, inc.** OLEAN, NEW YORK

When inquiring check CP 8810 on handy form, pgs. 2-3



**Pritchard's  
New  
HYDRYER\***



- For Efficient Drying of Compressed Air and Other Gases
- Packaged Units for Instrument Air and Industrial Processes
- Only Service Connections Required

Pritchard HYDRYERS are unexcelled for efficiency and dependability in drying air for instrument and process controls. Standard packaged units are designed to reduce dew points of compressed air and other gases to minus (—) 40° F. No special installation required. Specially designed units may be built to your requirements.

Write for FREE Bulletin No. 16.0.080

\* Registered Trade Name

**EQUIPMENT DIVISION**  
**J.E. Pritchard & Co.**  
Dept. No. 5 908 Grand Ave., Kansas City 6, Mo.

District Offices:  
Chicago • Houston • New York • Pittsburgh • Tulsa • St. Louis  
Other Representatives in Principal Cities from Coast to Coast

When inquiring check CP 8811 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

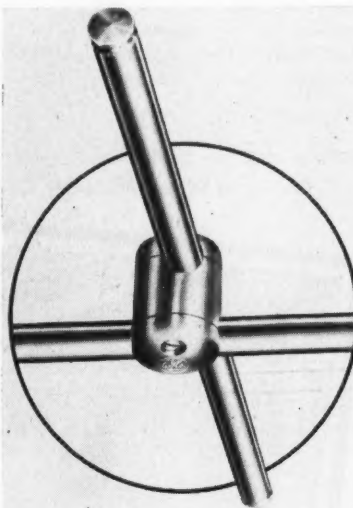
### Aids set-up of lab support frames . . .

aluminum alloy clamp not melted by Bunsen flame

**Uses:** Employed in setting up laboratory support frames, clamp is used for attaching two rods at right angles to each other.

**Features:** Made of a high-melting aluminum alloy that will not disintegrate in the flame of a Bunsen burner.

**Description:** The new stationary clamp is an addition to manufacturer's



Clamp holds rods at right angles

aids for frame construction. He also provides the universal clamp which permits complete versatility including multiple rod attachment at any two-dimensional angle, a swivel attachment to give any three-dimensional angle, and a special attachment for wall and floor mounting and couplings.

**Source:** Emil Greiner Co., Dept. CP, 20-26 N. Moore St., New York, N. Y. . . . or for more information check CP 8812 on handy form, pages 2 and 3.

### Air pollution, research proceedings published

"Proceedings of the First National Air Pollution Symposium" contains 21 papers in its 149 illustrated pages. "Proceedings of the Second Annual Northern California Research Conference" includes 11 addresses in 66 pages. Both proceedings were published April 1, 1950.

Remit \$2.50 for the former, and \$2 for the latter, direct to the Public Relations Office, Stanford Research Institute, Dept. CP, Stanford, Calif.

## THE DECISION OF A LIFETIME

It is literally true that the decision to install Neff & Fry Storage Bins is a lifetime decision, for these Super-Concrete Stave structures can be expected to last beyond the ruling generation.

Many of the N & F Bins erected 30 years ago are now serving the sons of the purchasers. This longevity is due to the endurance of the Super-Concrete Staves. The staves are formed under hydraulic pressure, giving them rocklike density and high compressive strength.

They do not rust, rot or burn. They form walls so rugged that heavy machinery is mounted upon them without additional supports. N & F Bins have often withstood tornadoes which destroyed adjacent buildings and uprooted nearby trees.

If you have flowable bulk materials to handle and store, get all the facts about N & F Bins. Our catalog, containing numerous photographs of installations, is yours for the asking.

**The NEFF & FRY Company**  
East Central Avenue, Camden, Ohio

**NEFF & FRY** STORAGE BINS

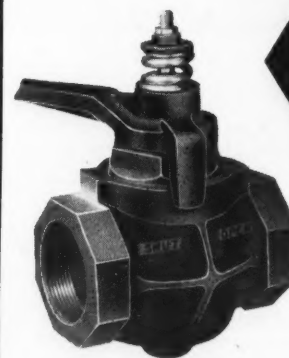
When inquiring check CP 8813 on handy form, pgs. 2-3

**VALVES THAT  
DON'T  
LEAK!**

No matter what flows through your pipeline, the valves on that line WON'T LEAK if they're DeZurik Easy-Operating Plug Valves.

DeZurik rubber-faced plugs seal dead-shut on anything from gas to slurries—they do it time after time through long, tough usage, without lubrication or adjustment—and with positive savings in time and money.

**A  
PIPE-  
DREAM  
FOR  
ENGINEERS**



Complete  
free catalog  
ready for you.

**DEZURIK  
SHOWER CO.  
SARTELL, MINN.**

When inquiring check CP 8813A on handy form, pgs. 2-3

CHEMICAL PROCESSING

## PROCESSING EQUIPMENT

### Special glass for dials of hydraulic crane scales can "take it" . . .

is about 5 times stronger than equal thickness of plate glass; 500° thermal shock won't break it

**Uses:** Dial glasses for manufacturer's hydraulic crane scales. Recommended for applications where impact and thermal shock usually break conventional glasses.

**Features:** Glass is up to 5 times as strong as plate glass of equal thickness, yet will bend as much as 20° without breaking. Glass will also absorb a thermal shock of 500° without breaking, making it suitable in areas where extreme temperature conditions exist.

**Description:** Impact-resistant and special-tempered glass eliminates need for protective metal guards which add to scale weight as well as interfere with easy weight reading. Dial glasses are not subject to scratching, and will not attract dust or produce irregular reflections common to plastic dial covers.

Core of the dial glass is relatively soft as compared with its extremely hard surface; can be polished and wiped off indefinitely without scratching. Manufacturer likens glass to the type used in aircraft searchlights during the war.

These dial glasses are now being incorporated in various models of maker's Hydroscales (hydraulic crane scales for weighing loads up to 100,000 pounds).

**Source:** Product of Hydroway Scale, Incorporated, Dept. CP, 20624 West Eight Mile Road, Detroit 19, Mich. . . . or for more information check CP 8814 on handy form, pages 2 and 3.

### Magnetic brakes add safety to established line of motors . . .

power failure will not cause spring-set brake to release, manufacturer reports

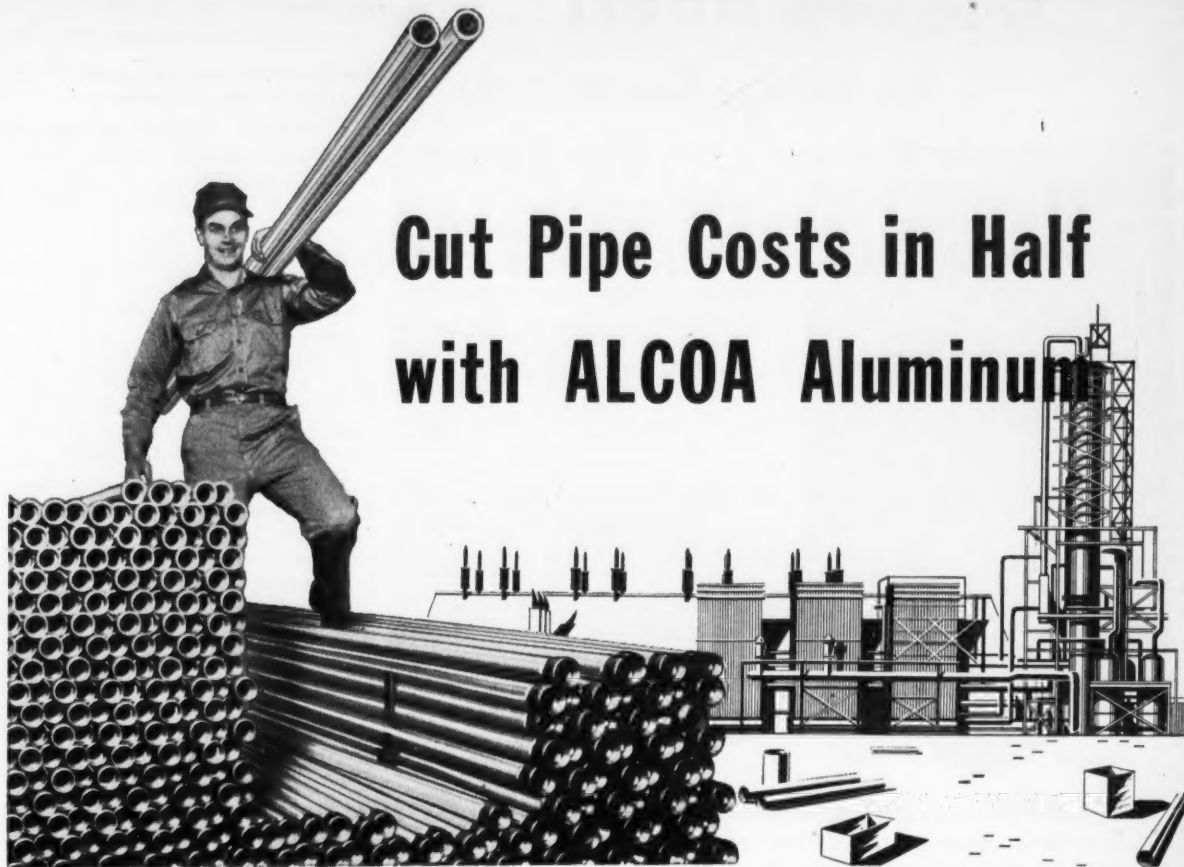
**Uses:** Line of motors equipped with magnetic brakes as unit apparatus has application on cranes, hoists, conveyors, machine tools, printing presses, and laundry machines.

**Features:** Brake is designed to hold even during power failure, thus safeguarding personnel and equipment.

**Description:** Motors up to 20 hp, 90 lb-ft static torque are available with explosion-proof, electrically operated magnetic brakes. For flexibility, brake combinations are selected to operate at 100 and 150% of full-load motor torque. A single adjustment nut sets the torque for specific load conditions, thus enabling operation below rated torque whenever possible to conserve brake linings and lengthen brake life. Brake linings are of high-friction material, and in normal operation the only maintenance required is a simple screw driver adjustment compensating for wear. Indicator tells when this is necessary.

Manual release is easily accomplished by removing the plastic window which covers the combination hand release and wear indicator. All brakes are totally enclosed, and brake cover is sealed to the motor housing providing protection from harmful atmospheres, dust, and dirt. Guarding against accidental harm to personnel and equipment, brake is reported to hold even if power fails during operation, due to its spring-set, solenoid-release design.

**Source:** Tri-Clad brake-motors are products of General Electric Company, Dept. CP, Schenectady 5, N. Y. . . . or for more information, check CP 8815 on handy form, pages 2 and 3.



## Cut Pipe Costs in Half with ALCOA Aluminum

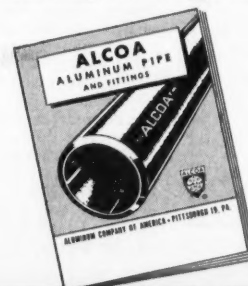
You can actually save 50% or *more* on pipe when you specify Alcoa Aluminum Pipe in place of other corrosion resistant pipe. Save money on installation, too, because aluminum weighs less.

**And get superior corrosion resistance.** Alcoa Aluminum 63S Pipe is highly resistant to corrosion by sulfur compounds; safely carries many chemicals, petroleum products, foods, other commodities. Where a high degree of purity and color must be maintained, specify aluminum, because it produces no metal oxides that contaminate the product. The product can't hurt the pipe, and the pipe can't hurt the product.

For local source of Alcoa Aluminum Pipe and other Alcoa Products, look under "Aluminum" in your classified telephone directory.

Alcoa Aluminum Pipe is seamless, and comes in 1/8" to 12" standard pipe sizes. It's easy to join, standard fittings and flanges are available from nationally known manufacturers.

For your nearest supplier, call your local Alcoa sales office (branches in 55 cities) or write ALUMINUM COMPANY OF AMERICA, 1977G Gulf Building, Pittsburgh 19, Pennsylvania.



Gives you the facts on Alcoa Aluminum Pipe—applications, physical and mechanical properties. Write today for your free copy.



# ALCOA

# PIPE



INGOT • SHEET & PLATE • SHAPES, ROLLED & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT-MOLD CASTINGS • FORGINGS • IMPACT EXTRUSIONS  
 ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM PIGMENTS • MAGNESIUM PRODUCTS

When inquiring check CP 8816 on handy form, pgs. 2-3

## Save with MONEL... Netting, Banding, Tie Wire



With rustproof, corrosion-resistant Monel® insulation netting, banding, and tie-wire, you can count on important *long run* economies.

You save on labor, scaffolding, and materials because Monel insulation netting, banding, clips, wire last *years* longer... even in corrosive industrial or salt sea atmospheres.

Installation is easy, too, because Monel is *tough* yet *pliable*. It is applied as readily as galvanized, but it is corrosion-resisting all through — there is no coating to corrode away.

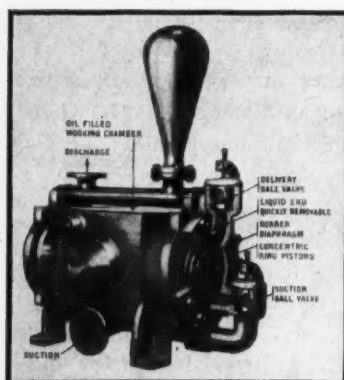
Find out how little it costs to get this added protection and reduced insulation maintenance costs. Write for full information *today*.

THE INTERNATIONAL NICKEL COMPANY, INC.  
67 Wall Street, New York 5, N. Y.

### MONEL...for minimum maintenance

When inquiring check CP 8817 on handy form, pgs. 2-3

## How Long Do Your Pumps Last On Tough Pumping Jobs?



- ✓ No Stuffing Box.
- ✓ No Leakage—No Loss.
- ✓ No Wear on Working Parts.
- ✓ Costs Less to Operate.
- ✓ Easier to Maintain.

Do you scrap the pumps you use on corrosive or abrasive materials after a few weeks or months? Or do they require frequent reconditioning at great expense?

Such tough service is rough on ordinary pumps. But with the Shriver Diaphragm Pump it's another story because it's *built* to handle such materials. Hundreds of service reports show that when properly (and easily) maintained, it outlasts ordinary pumps many times.

For example, how long do you think any one of the many types of pumps offered would last on hot glue and emery? Days—maybe a few weeks, at best. But 21 Shriver Diaphragm Pumps on this very hard service show an average annual cost for replacement parts and maintenance of less than 6% of the pumps' first cost.

It will pay you to look into how the Shriver Diaphragm Pump can help you out of your pumping troubles. Get Bulletin 126.

Get a copy ➡



T. SHRIVER & COMPANY, Inc.  
846 Hamilton Street Harrison, N. J.

When inquiring check CP 8818 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

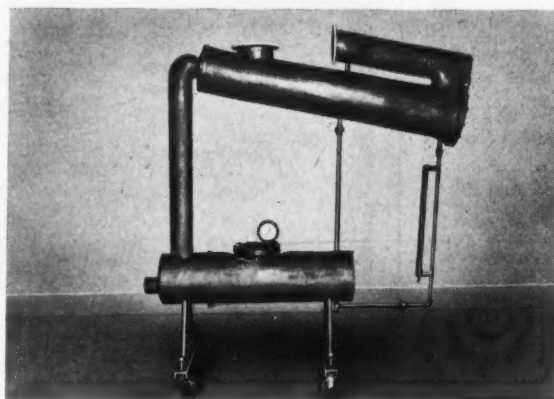
### Slash vacuum pumping costs in 10-300 micron range...

booster plus mechanical pump evacuates air from 100 microns for 14c/lb if kw hr is 0.8c

**Uses:** Booster pump for inexpensively pumping large volumes of gas or air in the pressure range of 10 to 300 microns to atmosphere. Built to handle water vapor and corrosive materials. High pumping speeds in 50 to 500 microns pressure range.

Useful in vacuum smelting of magnesium, calcium, titanium, and other metals, also in dehydration and distillation where vacuums of 20 to 100 microns must be maintained on kinetic systems. Also effective as a backing pump for exceptionally high-speed diffusion pumps, or with installations of several parallel high-speed pumps. The purpose served is two-fold:

- 1) To bridge the liter-micron gap between output of diffusion pump and capacity of mechanical pump, and 2) to provide forepressure within operating range of large high-speed units; i.e., about 50 microns. Because of water



Uses include vacuum smelting of magnesium

and vapor-contamination, this cannot normally be maintained by a mechanical pump alone, manufacturer points out.

**Features:** High allowable forepressure ranging from 1 to 3 mm Hg. High gas-handling capacity at low cost. Manufacturer cites recent tests to determine cost of pumping 1 lb air from 100 microns to atmospheric pressure, using several standard pumping systems, as follows:

"In all cases, electric power was fixed at 0.8 cents per kw hr, 150-lb-pressure steam at 50 cents per 1000 lbs, and process water at 8 cents per 1000 gals. When a 5-stage steam ejector was used, pumping cost was 68 cents. Cost by mechanical pumping alone was 50 cents. With a KB-300 pump and a mechanical pump, pumping cost for 1 lb of air was approximately 14 cents.

"Initial equipment-investment is comparable in all 3 instances," manufacturer continues, "but in the case of mechanical pumping alone, the amount of gas moved per unit of time is much smaller than that moved by the combination of the KB-300 and the mechanical pump, in the same time unit."

**Description:** Speed of the KB-300 oil ejector vacuum pump is greater than 300 liters per second in the 200 micron range. Optimum operation requires a fore pump of approximately 100 cfm (50 l/s) capacity. While a mechanical fore pump as small as 10 cfm can be used, it will limit the pumping speed at pressures above 80 microns.

Below pressures of 200 microns, KB-300 is said to have

do humid days



to your Product?

### ON THE PRODUCTION LINE

Sylvania Hosiery Mills, at Ephrata, Pa., where m'lady's fine nylon hose originate, had this very same production problem on humid days. Nylon thread stretched, became sticky and unworkable. KATHABAR, the true humidity control system for comfort and process atmospheres, eliminated this production bottleneck—assured weather-proof production schedules—saved countless dollars previously lost by quality irregularity. The controlled-humidity atmosphere for nylon, of 80°F and 50% relative humidity, gave employees personal comfort, too.

Write for the complete story and learn how KATHABAR can help you meet your production requirements.

The **Kathabar** system of humidity control for industrial processes and comfort offers you:

- ★ **FLEXIBLE OPERATION**—Prescribed humidity level maintained regardless of outside conditions—humidifies as well as dehumidifies.
- ★ **DEPENDABILITY**—Few moving parts—system serviced while in operation—non-corrosive solution.
- ★ **EASE OF INSTALLATION**—Simple duct arrangement—compact and lightweight—minimum assembly required.
- ★ **ECONOMY**—Extra low operating cost—needs no licensed engineer.

PREVENTS FROST ON LOW TEMPERATURE COILS

## Kathabar

MANUFACTURED BY  
**Surface Combustion  
CORPORATION**  
TOLEDO 1, OHIO

SURFACE COMBUSTION CORPORATION  
Kathabar Division  
TOLEDO 1, OHIO

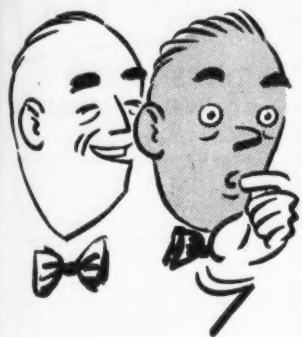
Please send Sylvania Mills story to:

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
Zone \_\_\_\_\_ State \_\_\_\_\_

When inquiring check CP 8819  
on handy form, pgs. 2-3

CHEMICAL PROCESSING

## Just a little off-color?



Slight discoloration from iron contamination can usually be eliminated by the simple process of adding SOLKA-FLOC to your filter solution. This pure cellulose material picks up iron or other heavy metals by adsorption and filtration. The filter cake may be ashed for recovery of metal.

Write today to our Technical Service Department. Details of your filtering process will aid us in providing appropriate samples for testing.

# SOLKA-FLOC

## BROWN COMPANY

500 Fifth Avenue, New York 18, N.Y.  
Brown Corp., Sun-Life Bldg., Montreal, Canada

FOREMOST PRODUCERS  PURIFIED CELLULOSE

When inquiring check CP 8820 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

"more speed than 10 large mechanical pumps (rated at 100 cfm) in parallel."

Source: Distillation Products Industries, Division of Eastman Kodak Company, Dept. CP, Rochester 3, N. Y. . . . or for more information check CP 8821 on handy form, pages 2 and 3.

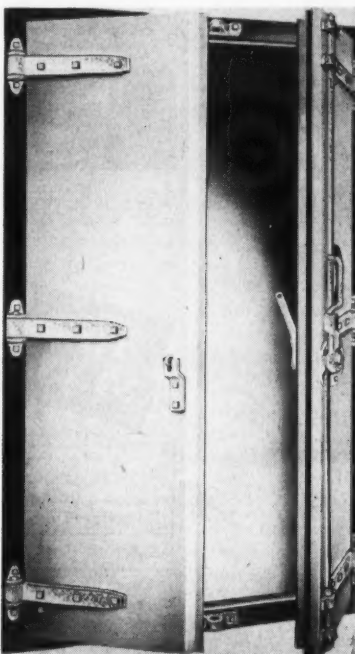
**Gas-tight door seals-off steam, vapors, smoke or gases of processing operations . . .**

practical for infrared drying rooms and cleaning, finishing work; opens to admit trucks or racks

Uses: Insulated door with gas-tight, vapor-tight seal. For processing operations using or generating gases, vapors, steam or smoke. High-temperature insulation also makes it suitable for infrared drying rooms, similar applications.

Useful for cleaning and products finishing. Properly sized to admit entrance or exit of trucks, racks of drying material, etc.

Features: Although operated as a unit, the sealing bars on all 4 edges are also independently adjustable and can be kept in maximum contact with all gasket surfaces.



Independently-adjustable sealing bars can also be operated as a unit

Center, top and bottom door-fasteners operate simultaneously, compressing gasket against the adjustable sealing bars. Operation is by means of a three-point interconnected "master" fastener, especially designed for this door, and equipped with a leak-proof inside release handle.

Gasket is heat-resistant, and is cemented into a continuous protected recess at top, bottom and side edges of door. Though severely compressed, it returns to original shape

when compression is removed. All-steel construction of door resists warpage, distortion and deterioration, and door is insulated with high-temperature-insulation, heavy-density fibre glass. Insulation is continuous, unbroken by structural bracing within insulated space.

Description: Equipped with galvanized hardware and a peephole emergency-release panel. Track-rail notch and chromed or special-finish hardware are optional. "Gas-tight" seal is formed by compression of deep, wedge-like gasket against the broad, curved contact-surface of the sealing bars.

Source: Jamison Cold Storage Door Co., Dept. CP, Hagerstown, Md. . . . or for more information check CP 8822 on handy form, pages 2 and 3.

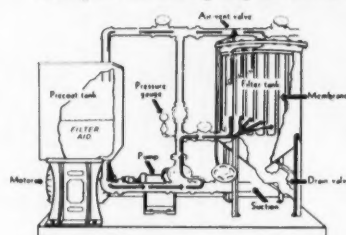
**Simplicity  
Means  
Economy**

when you use  
**Titeflex FILTERS**

Titeflex filters are high in efficiency . . . their operation is so simple that costs are lower than with other methods. They require no replacement parts such as bags, sheets, etc. They are cleaned by an efficient backwash system, entirely eliminating waste labor. And they produce the *highest possible* degree of filtration.

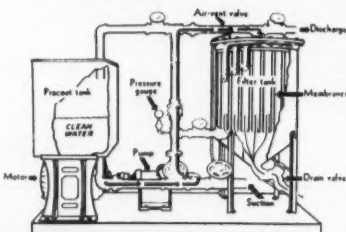
Write for complete catalog showing all models

**Simple 3-step operation ups efficiency, saves money**



**PRECOATING**—Precoat of inexpensive filter-aid is built up on outside of permanent membrane cylinders.

**FILTRATION**—is started merely by turning proper valves. Titeflex filters can accommodate more liquid than any other equipment with equal filtration area.



**BACKWASHING**—Cleaning is accomplished by reversing flow of liquid through membranes. Operation is completed in minutes and it is unnecessary to remove residue manually.

**Titeflex, Inc.** 500 Frelinghuysen Ave. • Newark 3, New Jersey



When inquiring check CP 8823 on handy form, pgs. 2-3

Would you like  
to receive  
**CHEMICAL PROCESSING**  
personally?

It will be sent to you  
without charge or  
obligation . . .

. . . if you qualify  
. . . if you request it

If you are responsible for processing operations . . . in the capacity of administrative executive, production manager, plant superintendent, chemical engineer, chemist, engineer (or equivalent responsibilities), **CHEMICAL PROCESSING** will be sent to you regularly, without charge or obligation . . . if you request it. The form below is for your request.

CHEMICAL PROCESSING  
737 N. MICHIGAN AVE.  
CHICAGO 11, ILLINOIS

Please send me **CHEMICAL PROCESSING**  
without charge or obligation.

Name .....

Title .....

Company .....

Street .....

City ..... Zone .....

State .....

Main Products .....

## PROCESSING EQUIPMENT

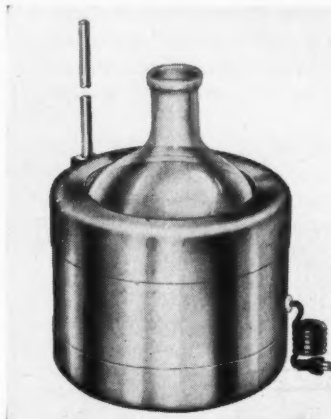
### Swing-away heater removed without disturbing lab set-ups . . .

line of heaters also includes model which provides support for laboratory assemblies

**Uses:** Heaters for laboratory set-ups — models for assemblies where heater is required as support base, and models for assemblies which require a heater that can be removed without disturbing equipment.

**Features:** Heat-conducting inner surface eliminates hot spots, thermal strain, and bumping. Lightweight; cool exterior permits handling when operating.

**Description:** Form-A-Heaters are available in two basic models. Model 100 Series is designed for assemblies where heater is required as support base. Model 200 Series is swing-away type, recommended for distillation column set-ups where it is often required that heater be removed from assembly without disturbing it. Has a clamp which merely calls for pressing a lever to swing heater down into vertical position.



Heater for laboratory set-ups

Both models operate from 125 v power supply; five sizes for each model have holding capacities ranging from 1000 to 12,000 ml, and power consumption ratings from 700 to 2000 w. Small units weigh 4-6 lb, largest 14-16 lb.

**Source:** Products of Reco, Dept. CP, 37 N. Wacker Dr., Chicago 6, Ill. . . . or for more information check CP 8824 on handy form, pages 2 and 3.

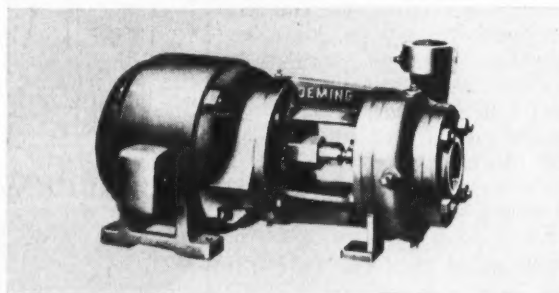
### Centrifugal pumps develop heads to 165 feet . . .

can be mounted on any motor having NEMA type "C" mounting flange

**Uses:** Centrifugal pumps for capacities to 200 gpm, heads to 165 ft, liquid temperatures to 200° F.

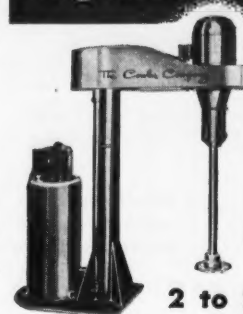
**Features:** Design of these units permit their being installed on any motor which has NEMA type "C" mounting flange.

**Description:** Pumps are made in 25 standard sizes, in



Centrifugal pumps are available in 25 standard sizes

Engineered to *Your* needs



**COWLES**  
*Ultra-Fast*  
**DISSOLVER**

**2 to 20 TIMES FASTER**  
Than Conventional Mixers

Saving up to 46½ hours per cycle—at rates 2 to 20 times faster than conventional mixers—the Cowles Ultra-Fast Dissolver is an engineered product, not a standardized machine. It can be adapted to meet a wide variety of conditions. In fact, all Cowles Dissolvers are more or less engineered to the job in that speed, horsepower, impeller and chemical inertness of tank are adjusted to the gallonage, viscosity, physical and chemical properties of the materials you have to process.

**LET US DEMONSTRATE.** In every case on record—either dissolving or dispersing—the Cowles Dissolver has consistently outperformed conventional mixers, cutting operating cycles to a minimum that is difficult to believe. Yet the result is achieved with a simple mechanism that applies classical physical laws. Incredible? Don't be. Let us demonstrate on your materials. No cost. No obligation. Simply write or wire.

*The Cowles Company*  
INCORPORATED  
107 TRACKSIDE, CAYUGA, N. Y.  
Associate: Alexander Fleck, Ltd., Ottawa, Ont.

When inquiring check CP 8825 on handy form, pgs. 2-3

**THIS FEEDER  
STANDS ON ITS RECORD**

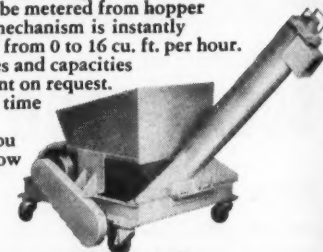
A large eastern chemical company saved time and reduced costs by installing a new G-W Portable Screw Feeder to meter out chemicals to a mixing kettle. Here's their record:

	Kettle fed by Hand	Kettle fed by G-W Feeder
Reaction Time	6 hrs.	1½ hrs.
Batches Completed	1½ per 24 hrs.	3 per 24 hrs.

Capacity was doubled. Furthermore, by eliminating the need for a new kettle, several thousand dollars were saved.

The hopper type feeder is equipped with a volumetric feeding device that can be manually set for a predetermined volume to be metered from hopper to screw conveyor. The mechanism is instantly adjustable to rates of feed from 0 to 16 cu. ft. per hour. Information on other types and capacities is available and will be sent on request.

A G-W feeder can save time and money in your plant. Just tell us the material you handle and the speed of flow desired—we'll be glad to send you complete information on a suitable feeder.



**GIFFORD-WOOD CO.**

Since 1874

Hudson, New York

Ⓜ 6760

420 LEXINGTON AVE.  
NEW YORK 17, N. Y.

545 W. WASHINGTON ST.  
CHICAGO 6, ILL.

RAILWAY EXCHANGE BLDG.  
ST. LOUIS 1, MO.

When inquiring check CP 8826 on handy form, pgs. 2-3

CHEMICAL PROCESSING

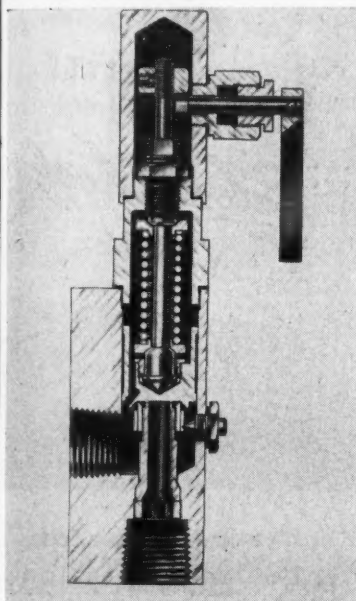
## PROCESSING EQUIPMENT

both vertical and horizontal types. Motors develop  $\frac{1}{4}$  to  $7\frac{1}{2}$  hp. Standard packing type stuffing box head is interchangeable with mechanical shaft seal type head. Ample space between stuffing box head and pump shaft coupling permits easy repacking of stuffing box. Pump shaft is stainless steel, fitted with compression coupling to assure perfect alignment of rotating parts. Impeller is enclosed type with non-overloading characteristic, statically and dynamically balanced and fastened to tapered shaft.

**Source:** "Motor-Mount" centrifugal pumps are manufactured by The Deming Company, Dept. CP, Salem, O. . . or for more information check CP 8827 on handy form, pages 2 and 3.

### Safety-relief valves of forged bar stock handle pressures to 10,000 lbs. . .

tests show coefficient of discharge equals that of nozzle discharging direct to atmosphere



**Uses:** Safety-relief valves for rugged operating conditions, including pressures up to 10,000 lbs.

**Features:** Results of tests by manufacturer show coefficient of discharge equal to that of a nozzle discharging direct to atmosphere. Choice of orifice sizes. Design includes new lower blow-down ring, self-aligning flat disc and long spring for close adjustment. Nozzle, carefully aligned for concentricity, is secured by a nozzle-retaining nut. Full capacity is obtained through high disc

Furnished in stainless steel, steel and brass, with choice of orifice sizes

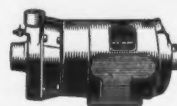
lift, developed by utilizing full force of nozzle flow.

**Description:** Rugged and compact, with all parts machined from forged bar stock. Nozzles and discs are type 316 stainless steel. Valves are furnished in stainless steel, steel and brass. Type 2745.

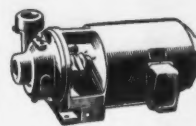
**Source:** Farris Engineering Corporation, Dept. CP, 505 Commercial Ave., Palisades Park, N.J. . . or for more information check CP 8828 on handy form, pages 2 and 3.

### Safety clothing and equipment pictured in catalog

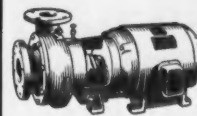
Forty-four-page catalog lists line of safety clothing and equipment. Items are indexed both by material and by specific use. Profuse illustrations and photographs throughout catalog accompany text. Catalog 501 is issued by Safety Clothing and Equipment Co., Dept. CP, 7016 Euclid Ave., Cleveland 3, O. When inquiring specify CP 8829 on handy form, pages 2 and 3.



SSR Fractional hp.

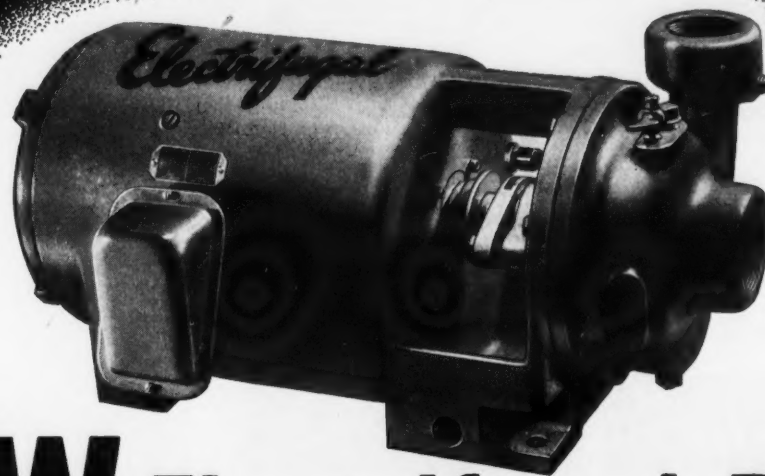


Electrifuagal 1 to 10 hp.



SSU 10 to 125 hp.

## ALLIS-CHALMERS PACKAGE PUMPS



# NEW Electrifuagal Pump

**ENDS SOME MAINTENANCE JOBS,  
SIMPLIFIES OTHERS TO CUT PUMPING COSTS!**

**N**O OTHER CLOSE-COUPLED PUMP can offer you *all* of these money-saving advantages you get from an *Electrifuagal* pump:

1. New sealed motor bearings eliminate usual bearing maintenance costs. Cannot be over or under lubricated.
2. New unit-cast iron frame has no adapter between pump and motor; provides great rigidity and broad, stable base.
3. New improved double seal on front motor bearing keeps liquid out of bearing under all normal operating conditions.
4. New streamlined design has smooth, easy-to-clean exterior, better appearance.
5. Large opening in frame between pump

and motor makes packing maintenance quick and easy.

6. Pump and motor are designed, assembled and tested as a unit in the same plant to work together and cut your cost.
7. Nation-wide application engineering and service help you select the right pump for your job and keep operating costs low.

Other pumps in the Allis-Chalmers package pump line feature these same money-saving designs. Get all the facts from your Allis-Chalmers Authorized Dealer or Sales Office. Or write for Bulletin 52B6140.

ALLIS-CHALMERS, 1151A SO. 70 ST.  
MILWAUKEE, WIS.

A-3061



*Electrifuagal* and *Texrope* are Allis-Chalmers trademarks.

# ALLIS-CHALMERS

When inquiring check CP 8830 on handy form, pgs. 2-3

**Sold . . .**

**Applied . . .**

**Serviced . . .**

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.

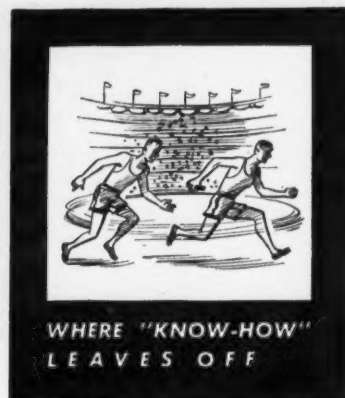
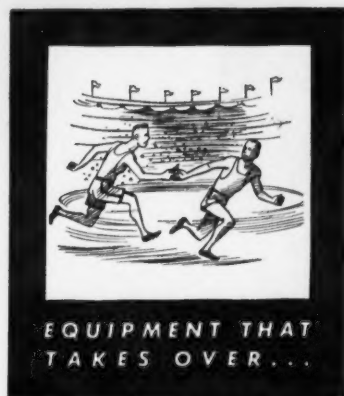
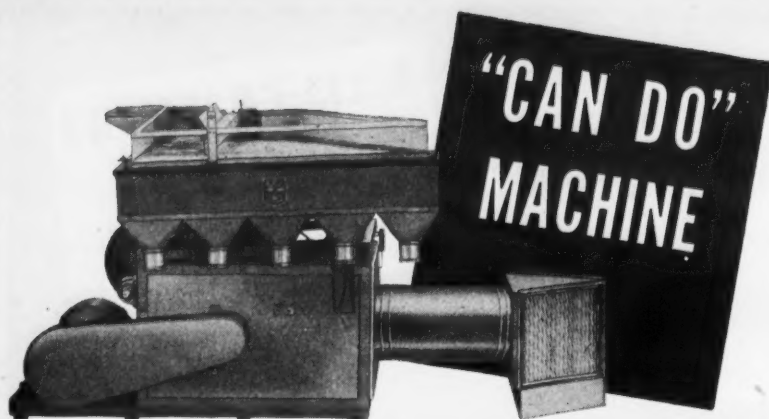


**MOTORS** —  $\frac{1}{2}$  to 25,000 hp and up. All types.

**CONTROL** — Manual, magnetic and combination starters; push button stations and components for complete control systems.



**TEXROPE** — Belts in all sizes and sections, standard and Vari-Pitch sheaves, speed changers.



Sutton's Specific Gravity Separators and Air-Float Stoners passed the "know-how" stage a long time ago. (Over sixty years of specialized experience in solving dry separation problems now goes into every machine shipped.) Their adequate performance in the chemical processing field—cleaning and upgrading raw materials and end products from sub-grade to high-quality, is a generally accepted fact throughout the industry.

Sutton's Separators and Stoners answer adequately all basic specifications required of any type of processing plant equipment—with performance to spare.

1. They will improve your product.
2. They will earn you more profit.
3. They are easy to operate and economical to maintain.
4. They will make separations that no other type equipment can duplicate.

If you are interested in taking a basic step toward economical process and product improvement without increasing overall expenses, write for instructions on how to submit a small sample of your material for a free preliminary test and analysis for separation, or use the coupon printed below.

SUTTON, STEELE, AND STEELE, INC.  
Department B-750, 1031 South Haskell, Dallas

Please forward instructions on how to submit a small sample of our dry commodity for a preliminary survey.  
(Kindly print following information):

Name \_\_\_\_\_ Position \_\_\_\_\_

Company \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

SALES AND SERVICE: DALLAS, COLUMBUS, GA., NEW YORK, PITTSBURGH, CHICAGO, MINNEAPOLIS, JACKSON, MICH., DES MOINES, SAN FRANCISCO, TWIN FALLS, IDAHO, FORT BEER, WINNIPEG, CANADA, SAO PAULO, BRAZIL, LONDON, ENGLAND.

When inquiring check CP 8831 on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

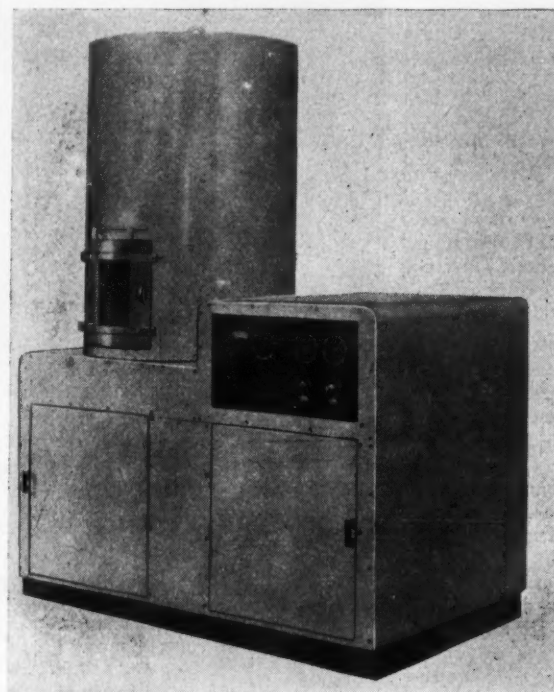
### Designed for spray drying on small scale . . .

packaged dryer contains all necessary components, operates after attaching feed lines, utilities

**Uses:** Laboratory or small-scale-production spray drying. Capacity varies from 5 to 25 lb/hr, depending upon type of material and operating conditions.

**Features:** Complete packaged unit, ready for operation after connecting feed line, atomizing air line and electrical lines.

**Description:** This type of research spray dryer employs a partially countercurrent flow principle which in reported



Research spray dryer measures less than 9' high and 7' long

to achieve relatively high heat efficiency. Steam, electricity or gas may be used as the heating medium. Heater is built with an air filter. The unit is complete with instrumentation, drying chamber, powder collection system, atomizing system and feed tank.

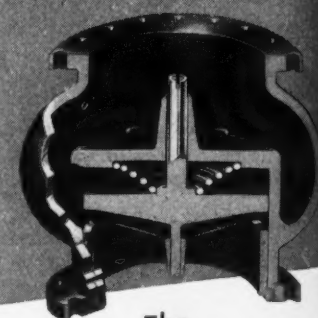
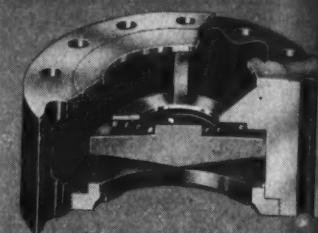
The drying chamber is 3'2" diam x 5'0" high double shell construction. All parts in contact with product are stainless steel with polished finish. Chamber is insulated with glass wool blanket.

A stainless steel cyclone collector is standard; bag collector may be specified for use with or without the cyclone. Exhausting fan is furnished, as is fan for forcing atmospheric air through filter and heater.

A two-fluid atomizing system is provided; one fluid is the slurry being dried and the other a high-pressure stream of air. Variations in pressure of the slurry and air streams control production rate. Each may vary 0-70 psi.

Drying air flow rate is controlled by damper. Thermostatic equipment controls drying air temperature. This temperature may be held at a low figure for heat-sensitive materials, or it may be controlled at a high temperature for other materials. Naturally, production rate is higher at elevated temperatures.

**Source:** Development of Swenson Evaporator Co.,



### The WILLIAMS-HAGER flanged *Silent check* VALVE

- durable
- compact
- accessible
- low friction

### the economical practical solution to costly WATER HAMMER

With its renewable disc and seat, non-wearing conical spring, the Williams-Hager Valve offers dependable protection in any position—horizontal, vertical with upward, vertical with flow downward and angular—easily installed. Easily installed or resealed without special tools, it is available in standard pipe sizes from 1" to 20"

Write for Bulletin WH 100

### THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

3015 PENNSYLVANIA AVE. • PITTSBURGH (12), PA.

When inquiring check CP 8832 on handy form, pgs. 2-3



## CLARK in the CHEMICAL Industry

**SURE-FIRE WAY TO GET MORE FOR  
YOUR MONEY... CLARK FORK TRUCKS**

**More Efficiency**  
(DO MORE JOBS BETTER)

**More Economy**  
(COST LESS TO OPERATE)

**More Durability**  
(LAST LONGER)

CLARK products are released  
only after standing the exact-  
ing test of Clark's Unmatched  
Engineering Laboratory.

Lower your break-  
even point—by cut-  
ting those handling  
costs with the versa-  
tile, efficient, and  
economical Clark  
Machines.

Many practical han-  
dling attachments  
broaden the useful-  
ness of Clark fork  
trucks—good idea  
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tach it to your busi-  
ness letterhead and  
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**THREE MORE REASONS WHY  
CLARK IS YOUR BEST BUY!**

## CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS



CLARK EQUIPMENT COMPANY • Battle Creek 9, Mich.  
Please send the items checked ... ☐ Movie Digest  
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When inquiring check CP 8833  
on handy form, pgs. 2-3

## PROCESSING EQUIPMENT

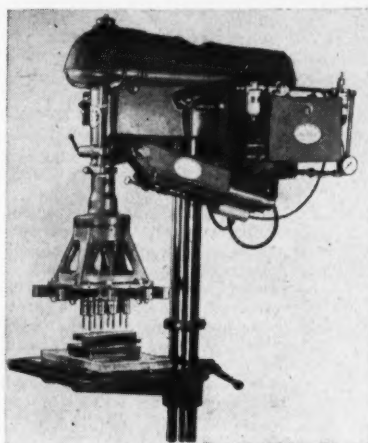
Division of Whiting Corp., Dept. CP, Harvey, Ill. . . . or  
for more information check CP 8834 on handy form, pages  
2 and 3.

**Operate drill press air feed  
on low pressures; air valve  
assures close control . . .**

thrust is reversed instantly at break-through point;  
stroke speed variable in either direction

**Uses:** Provides proper thrust and correct drilling action  
for practically any size drill working in any drillable ma-  
terial.

**Features:** Highly flexible air feed operates on low  
pressures and uses less air than usually consumed by air  
powered feeding devices. Feed is small, compact, quickly  
installed and does not extend be-  
yond face of drill  
press.



Tapping 0.257" holes in 1/2" alumi-  
num stock

Absolute control  
of air power is  
provided, even at  
low pressures, by  
Hi-Cyclic air  
valve. This valve  
has no linkage or  
mechanical lag  
and will operate  
as fast as is elec-  
trically possible  
with an AC sole-  
noid.

**Description:** A-  
vailable in either  
standard or heavy  
duty models in  
four feed types:

1) Drill, 2) Drill with dwell, 3) Drill, chip clean and  
dwell, 4) Drill and tap. Models are designed to fit all  
drill presses having 1 1/4" pinion shafts and are readily  
adapted to shafts of other sizes. On standard models,  
maximum length of stroke is 2 1/2" on 1 1/4" pinion shaft  
or 270° of shaft rotation.

Standard feed develops 4 lb to 750 lb drill point thrust.  
Heavy duty feeds have a maximum length of stroke of 4"  
on 1 1/4" pinion shaft or 445° of shaft rotation and de-  
velop 10 lb to 1250 lb drill point thrust.

With a drill press equipped with the drilling-tapping feed  
model, drilling operations can be changed over to tapping  
by simply removing the drill and placing the tap directly  
in the drill chuck or multiple spindle drill head. Set-up  
time is cut to minimum as operators can drill and tap from  
same fixture. Drilling-tapping feed permits tapping on  
10 lb working pressure.

Drilling-tapping feed operates with any three-phase motor  
and drilling-tapping depth is controlled to 0.001", without  
using hydraulic check controls.

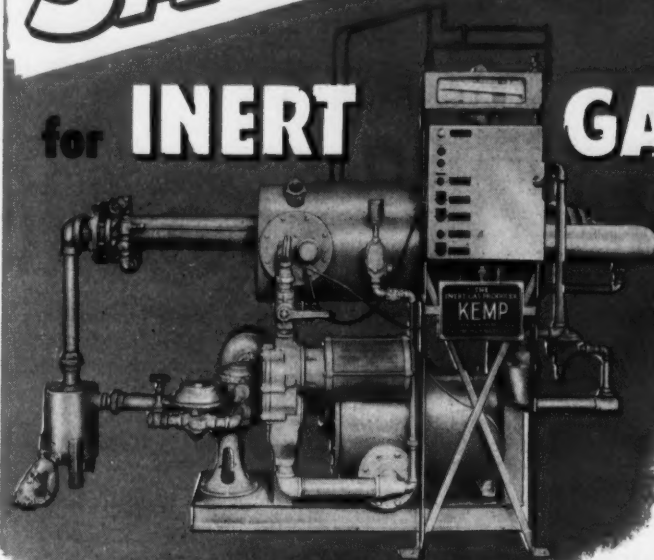
Illustration shows air-powered drilling-tapping feed with  
control box, mounted on small drill press. Work set-up  
is being used to tap eight 0.257" holes in 1/2" aluminum  
stock directly from a multiple spindle drill head. By  
simply removing guide bushings, the same fixture used for  
drilling is used for tapping.

**Source:** Beckett-Harcum Co., Dept. CP, Wayne Road,  
Wilmington, Ohio . . . or for more information check CP  
8835 on handy form, pages 2 and 3.

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\$10 you spend

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DELIVERS INERT GAS FOR 10%  
OF YOUR PRESENT COST!**

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of 83% to 90%. Saves you money no  
matter whether you use bottled inerts  
or produce them with old-fashioned,  
fuel-hungry equipment. This fully  
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When inquiring check CP 8836 on handy form, pgs. 2-3

# ASK ADSCO

to help you  
select the right

## HEAT EXCHANGERS

Few heating or cooling problems are exactly alike. In some cases, standardized equipment can be adapted for installation, with substantial savings in cost and delivery time. On the other hand, many problems require specially designed units to meet specific operating needs.

In either case, ADSCO can provide the right equipment, expertly designed and fabricated. ADSCO offers a complete line of standard or custom-made heat exchangers in a wide variety of types.



STRAIGHT-TUBE  
FLOAT HEAD  
HEAT EXCHANGER  
with  
Removable Bundle

This ADSCO unit has extensive applications in many fields. It can be furnished as shown or with non-removable bundle. Tubes may be of copper, stainless steel or special alloys. Shells may be fabricated of carbon, stainless or nickel-clad steel or copper silicon or other alloys.

INSTANTANEOUS WATER HEATER  
Water Tube Type



ADSCO instantaneous heaters include: converters, water heaters, condensate coolers, booster heaters, oil heaters, economizers, etc. . . . gravity or forced circulation . . . vertical or horizontal . . . steam or water tube type. Usual construction is steel shell with removable copper U-tubes. Thousands of these ADSCO heaters are in use today.



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HEATER

This heater, with removable U-tube element, can be furnished in either horizontal or vertical design. Shells are fabricated, per A.S.M.E. Code, of copper silicon alloy, stainless- or nickel-clad steel, galvanized or black carbon steel. ADSCO corrosion resistant treatment adds life to black steel tanks.

ASK ADSCO for expert engineering recommendations, drawings or estimates to meet your specific problems . . . or consult your ADSCO representative. No obligation, of course.

EXPANSION JOINTS — HEAT EXCHANGERS  
STEAM TRAPS — STRAINERS — METERS  
CASING — ANCHORS — GUIDES

AMERICAN DISTRICT STEAM CO.

NORTH TONAWANDA, N. Y.

Leaders  
Since  
1877

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## \$500.00 in Annual Awards plus awards of \$25.00 each for New Solutions of Processing Problems

(See announcement, page 7)

### The Rules:

- 1) "New Solutions" will be considered for editorial treatment on the basis of their: 1) Fact-content, 2) Practical value to readers, and 3) Adaptability to an article stating a specific chemical processing or affiliated problem, how it was solved, and the results achieved as compared to results formerly.

All "New Solutions" must pertain to an actual, specific case not previously published in *Chemical Processing*. Literary ability is unnecessary; all material will be edited by our staff and "cleared" through the respective manufacturers before publication.

To determine if your fact-article possesses the necessary elements to qualify for presentation by our editors as a "New Solution", check your information against that contained in articles appearing in the "New Solutions" section of this magazine, page 8. However, if your "New Solution" is a worthy one, even though some of your data may be too sketchy, our editors will work with you to develop the missing facts.

- 2) All entries must contain the following information:
  - a) Sender's name, title and plant address.
  - b) Name and address of the plant or company where the problem occurred.
  - c) Name and address of the company, or companies, whose materials, equipment or consultation were employed in solving the problem.
  - d) A factual summary showing: 1) the problem that existed, and why a change was necessary; 2) what was done to overcome the problem; 3) a comparison of results, both before and after the problem was solved, showing in facts and figures, or percentages, the tangible and concrete degree of accomplishment, as well as any additional benefits that were realized. Be specific. This will help you as well as the editors.

- 3) Advertising, publicity, publishing, sales and sales promotion executives and personnel shall not be eligible to compete, regardless whether affiliated with a manufacturer, advertising agency or otherwise.

- 4) At least two months should be allowed between the date of mailing an entry and the date of its possible publication. Some "New Solutions" may take longer than others, particularly where facts are inadequate, or where pre-publication approvals must be obtained from more than one manufacturer.

Qualified material published in issues of *Chemical Processing*, up to and including April, 1951, will be eligible for annual awards of \$250, \$150 and \$100 for first, second and third best reader-submitted "New Solutions", respectively. Winners of annual awards will be announced within three months after publication of the May, 1951, issue.

- 5) All reader-submitted "New Solutions" will be acknowledged as promptly as feasible.

- 6) Published material originating from reader-submitted "New Solutions" will be identified as such, and the sender's name published along with a special "Locator" index for finding such articles in a particular issue.

- 7) All manuscripts become property of Putman Publishing Company, and will not be returned. Awards of \$25 shall be contingent upon publication in the editorial columns of *Chemical Processing*, and decision of the editors in selecting or rejecting material for editorial development shall be final. Readers may submit as many "New Solutions" as they wish; however, each "New Solution" article shall be eligible for only one \$25 award, and one annual award, regardless if published in one or more publications of Putman Publishing Company.

- 8) Judging of the three best reader-submitted "New Solutions" of the year will be handled by an Editorial Awards Committee consisting of 10 impartial reader-judges. Members of this committee will be announced later.

Mail all entries to:

AWARDS EDITOR  
Chemical Processing  
737 No. Michigan Avenue  
Chicago 11, Illinois



## Tough yet Gentle

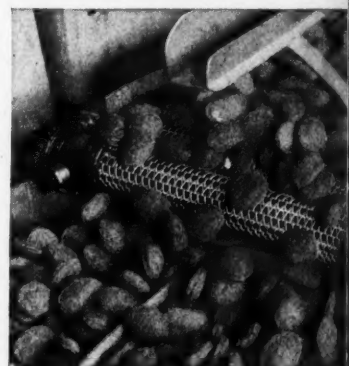
### Cambridge WIRE BELTS

#### Combine Movement with Processing Through Fire or Water

Cambridge Wire Belts shrug off extremes of temperatures, corrosive agents, torsion strain and wear. They hustle rough, bulky objects through the most rigorous treating processes, or convey delicate products with maximum safety.

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Let a Cambridge Field Engineer  
help you secure these advantages for your operation.



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Write for FREE copy of the 130-page, illustrated Cambridge Wire Belt Catalog. It's an education in belt and conveyor design, application, installation and operation.

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Wire cloth in rolls. Also specialized wire fabrications

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on handy form, pgs. 2-3

CHEMICAL PROCESSING

# LOW-COST SOLID TEFLON RING GASKETS

**Now Stocked  
in Standard Sizes  
for Immediate Delivery**

You can now get solid Teflon ring gaskets in many standard sizes at mass production prices from stocks in Camden, Houston and Chicago.

case you haven't discovered Teflon's advantages as a gasketing material, this DuPont wonder plastic is completely inert to all chemicals. Teflon cannot be attacked by nor contaminate any industrial material conveyed in piping. Thus, it is never necessary to change Teflon gaskets to suit changes in materials conveyed.

Teflon's natural slipperiness prevents any sticking of these gaskets. Extremely *antibesive*, a Teflon gasket is never defaced or torn when joints are opened. Teflon gaskets can be used over and over before needing replacement.

Sizes from 1 in. to 12 in. nominal OD for 125-150 and 250-300 lb. pressure series. Thickness—1/32, 1/16, or 1/8 in. Prices on request. Write Houston—2415 San Jacinta St.; Chicago—343 S. Dearborn St. Camden address below.

Also available—Teflon sheets, rods, tubing, bars, cylinders, and bulk Teflon packing.

**Teflon Products Division**

## UNITED STATES GASKET COMPANY

618 N. 10th St., Camden, N. J.

When inquiring check CP 8839 on handy form, pgs. 2-3

## Convention & Exhibit Schedule

- Aug. 15-19. National Power Show of National Association of Power Engineers, Hotel Jefferson, St. Louis.
- Sept. 3-8. American Chemical Society (118th National Meeting), Chicago.
- Sept. 5-9. National Chemical Exposition, Coliseum, Chicago.
- Sept. 10-13. American Institute of Chemical Engineers (Regional), Minneapolis.
- Sept. 18-22. National Instrument Conference and Exhibit, Buffalo.
- Sept. 27-29. American Coke and Chemicals Institute, Skytop Lodge, Skytop, Pa.
- Oct. 3-6. National Brewing Industries Exposition, Convention Hall, Philadelphia.
- Oct. 3-5. National Lubricating Grease Institute, 17th National Meeting, Roosevelt Hotel, New Orleans.
- Oct. 23-25. Annual Forum of Packaging Institute, Hotel Commodore, New York.
- Nov. 13-16. American Petroleum Institute, Biltmore and Ambassador Hotels, Los Angeles.
- Nov. 15-18. National Paint, Varnish and Lacquer Association, Fairmont Hotel, San Francisco.
- Dec. 3-6. American Institute of Chemical Engineers, Annual Meeting, Columbus, Ohio.
- Dec. 4-5. Chemical Specialties Manufacturing Association, Annual Meeting, Hotel New Yorker, New York.
- 1951
- Jan. 18-20. Seventh Annual National Technical Conference of the Society of Plastics Engineers, Inc., Hotel Statler, New York.
- April 30-May 4. Fourth National Materials Handling Exposition, International Amphitheatre, Chicago.

### Heavy duty suction service provided by vacuum pump

Cycloidal vacuum pumps for heavy-duty suction service are discussed in 12-page bulletin. Typical performance curves and many photographs of actual installations are shown. Cut-away drawing explains operating principle of pump. Held capable of producing vacuums from 4 to 26" Hg, pumps have extensive paper mill applications on couch and press rolls, flat boxes, and felt conditioners. Bulletin 50-B-13 is issued by Roots-Connorsville Blower Corporation, Dept. CP, 900 W. Mount St., Connorsville, Indiana. When inquiring specify CP 8840 on handy form, pages 2 and 3.

### Tells how to sell to the Army, and what it buys

How to sell to the Army and what it buys are the subjects of a pamphlet designed to assist the businessman. General information is given on where purchasing is accomplished, how material is procured, types of contracts, inspection, delivery schedules, etc. Appendices list items purchased, purchasing locations, and local purchases.

For a copy of "How to Sell to the United States Army" remit 30 cents direct to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

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*process men value*

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MIDLAND, MICHIGAN**



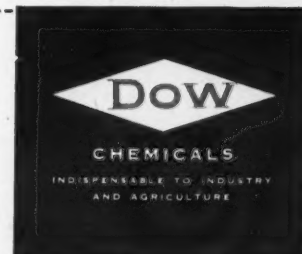
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DOWTHERM DIV. 286-2  
MIDLAND, MICH.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

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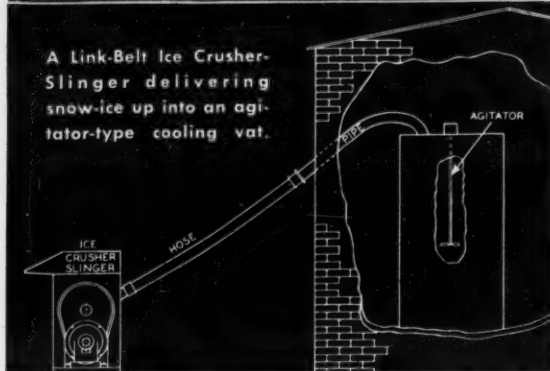
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When inquiring check CP 8841 on handy form, pgs. 2-3



**SNOW-ICE**  
Replaces  
**CHUNK ICE**  
in Chemical Cooling  
and Dilution



A Link-Belt Ice Crusher-Slinger delivering snow-ice up into an agitator-type cooling vat.

## The Change-over is Easy with LINK-BELT Ice-Crusher Slinger

All the advantages of snow-ice are in favor of lower icing costs. Feed your ice to the Link-Belt Ice Crusher-Slinger where it is reduced to fine snow-ice and blown up into the vat without further handling. Handling costs reduced to a minimum, icing time is decreased, and as in this case, life of agitator blades is prolonged.

One of the many standard sizes, types, and models of the Link-Belt Ice Crusher-Slingers will meet your needs. Write for the complete story.

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**LINK-BELT**  
**ICE CRUSHER-SLINGERS**

When inquiring check CP 8842 on handy form, pgs. 2-3

## Discussed in This Issue --- PROCESSES, EQUIPMENT and MATERIALS

Use this "quick-locator" when you want information on a specific type of process, equipment or material mentioned in the processing stories or the advertisements in this magazine. Everything discussed in this issue is given here; if you want more data you can write manufacturer direct . . . or turn to pages 2 and 3 and use the handy "Information Request Slip." This is a special service provided by the publisher . . . no obligation or charge, of course. The publisher contacts the proper manufacturers for you—information comes to you direct.

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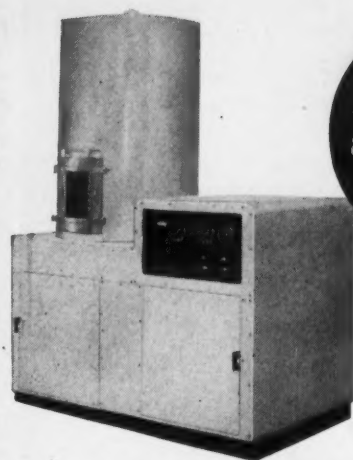
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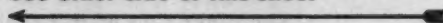
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### New base for plastics

Furfuryl alcohol is the base for a new series of plastics which can be used as adhesives or as corrosion-proof coatings for steel. (U. S. I. Chemical News, 60 E. 42nd St., N. Y., N. Y.)

### One standard a day approved by ASA

Report just issued by American Standards Assn., shows that the number of new and revised American Standards, approved during 1949, was almost double the average number approved annually during the speeded-up activity of five war years. More than five times as many standards were approved in 1949 as the annual average for the first 13 years of the association's operation.

Standards were approved or revised during 1949 at the rate of one every working day. Last year there were 268 approvals, raising the total number of American Standards to 1121 and total revisions to 1014.

American Standards Association is a federation of 101 national organizations (technical societies and trade associations), many of which are well-known standardizing bodies, with limited scopes of operation. Membership also includes some 2000 industrial firms. (American Standards Association, 70 E. 45th St., New York, N. Y.)

### First aluminum gas line to be 1.8 miles long

The first aluminum gas line to be installed in the nation will be an all-welded line that will extend underground approximately 1.8 miles from the main trunk line of the Alabama-Tennessee Natural Gas Company to the Listerhill, Ala., plant of Reynolds Metals Company. Line is being installed by Lehman Hoge & Scott of Sheffield, Ala., and will be owned by the Alabama-Tennessee Natural Gas Company.

It consists of extruded (not drawn) type 63S-T6 aluminum alloy pipe measuring 8 5/8" outside diameter. Walls will be 1/4" thick. Line is designed for a working pressure of 200 psi, with a bursting pressure of 1750 psi.

A single 40' section of the line will not be wrapped. This will be by-passed by a wrapped section. Unwrapped section will be dug up at 6 month intervals for examination. Experiments have indicated that wrapping may not be necessary. (Reynolds Metals Co., Louisville, Ky.)

### Enzymatic decomposition of lignin

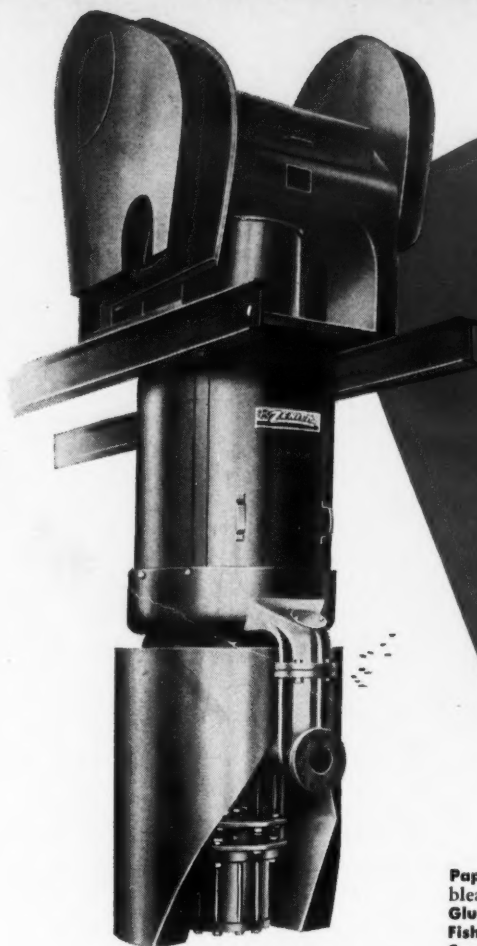
In the April issue of CHEMICAL PROCESSING, an article commented on reports that the major cause of wood rot had been isolated by researchers at the University of Maryland. Subsequent information, direct from Dr. Sidney Gottlieb of the University clarifies these reports and corrects certain misstatements.

The research is concerned with a fundamental academic study of the decomposition of lignin by microorganisms. Actually, the researchers have under study an enzyme which seems to oxidize lignin. This may, or may not, be one of the processes that go on as wood is rotted by fungi.

In the studies, absorption of oxygen in a Warburg manometric apparatus was used as an indication of enzyme activity. A reliable source of enzyme was found to be commercial mushroom spawn. It is believed that this enzyme is not identical with any of the known phenol oxidases since mushroom spores do not yield a product having activity.

As the studies progressed, a number of cultures were employed. It was possible to so adapt two of them that they consistently produced an appreciable amount of growth in a solid, or liquid medium in which lignin was the limiting source of carbon. The availability of such a technic for rapid growth of fungi, on a synthetic medium containing lignin, provides a more rigorous and rational approach to the mechanism of biological degradation of lignin than has heretofore been possible.

Preliminary studies indicate that various commercial lignin by-products can be rapidly degraded by a species of wood rotting fungus, in such a way that the material is converted to fungus mycelium, water soluble degradation products and carbon dioxide.



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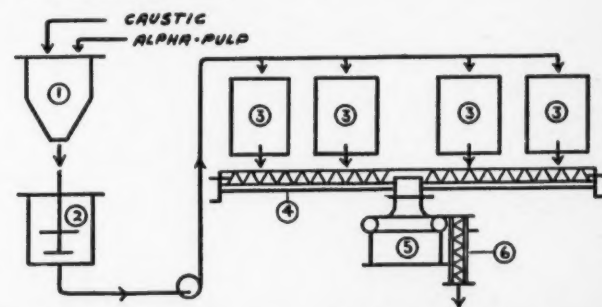
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